



Sustainability

**From the Perspective of Responsible Investing/ESG -
A General Framework for Organizations**



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A General Framework for Organizations**

March, 2022



TECHNOLOGY DEVELOPMENT FOUNDATION OF TURKEY

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Abbreviations & Acronyms

AUM	Assets under Management
B2B	Business to Business
B2C	Business to Consumer
BMI	Board Market Index
CBAM	Carbon Border Adjustment Mechanism
CDP	Carbon Disclosure Project
CEO	Chief Executive Officer
CO ₂ e	Carbon Dioxide Equivalent in Metric Tons
COP 26	2021 United Nations Climate Change Conference
COVID-19	Coronavirus Disease of 2019
CSO	Chief Sustainability Officer
Dollar	US Dollar
ESG	Environmental Social Governance
ETS	Emission Trading System
EU	European Union
GRI	Global Reporting Initiative
IEA	International Energy Agency
IFC	International Finance Corporation
IIRC	International Integrated Reporting Council
IoT	Internet of Things
IPCC	Intergovernmental Panel on Climate Change
KPI	Key Performance Indicator
MDGs	Millennium Development Goals
NGO	Non-Governmental Organization
OEM	Original Equipment Manufacturer

OIZ	Organized Industrial Zone
PRI	Principles for Responsible Investing
R&D	Research and Development
RoI	Return on Investment
SASB	Sustainability Accounting Standards Board
SD	Sustainable Development
SDG	Sustainable Development Goals
SME	Small and Medium (Sized) Enterprise
SRI	Socially Responsible Investing
SSEI	Sustainable Stock Exchanges Initiative
STOK	Strategic Focus Commission
TCFD	Task Force on Climate-Related Financial Disclosures
TTGV	Technology Development Foundation of Turkey
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNEP/FI	United Nations Environment Programme Finance Initiative
USA	United States of America
WCED	World Commission on Environment and Development
WEF	World Economic Forum



Cengiz Ultav
Chairman of the Board
TTGV

The waves of global change and transformation have always marked the turning points that seriously affected our lives and business world. Now, we are going through a massive turning point called the ‘global climate crisis’, which has already gone beyond undeniable limits and yet keeps coming at us much severely as it picks up. As evidenced by the research, analyses and predictions, the world is on the verge of 3 °C of warming on ecological systems and humanity, which will “inevitably lead to irreversible consequences”. Although it is very critical, global warming and related climate changes are not the only risks. Social, economic and political risks are adding up and the crises are becoming more frequent due a number of ‘huge’ problems such as the rapid decrease in natural resources, increasing water stress, environmental pollution, depletion of ecosystems and biodiversity, etc. along with the increasing human population.

It is now strongly admitted also globally that adoption of a new economic order is required for the sake of the sustainability of environmental, economic and social development. We witness that the economic model that emerged following the industrial revolution, especially in the past 50 years, has started to be transformed by sustainability approaches and digitalization.

We currently go through a huge wave of innovation in which the rules of competition are redrafted upon the radical changes in the context of business models, products, investments, processes, organizations, human resources and technologies. Our country has also started to take various steps in an effort to protect and even increase its competitiveness by sticking to this wave of sustainability and digitalization induced transformation. It is critical that this wave is embraced, not as a threat, but rather as an important opportunity on the way to change.

An important point of friction is the way of financing this radical transformation. It is a topic discussed at global level, alleging that the “large” financial resources that will be needed should be provided not only by the public/government, but also by the business world, civil society and investors in particular. Investing is transforming, too and shaped increasingly through the responsible investing practices and ESG (Environmental, Social, Governance) principles. **Both financial resource seekers and investors will need to associate the sustainability and competitiveness not only in economic terms, but also with the development and sustainability of environment, world, society, communities and people.** It is crucial to contribute to the preparation of the business world and innovation ecosystem for the transformation by providing an insight into the transformation in order to interpret, support and improve this relationship and to create a paradigm change that will attract required financial resources.



Introduction

Technology Development Foundation of Turkey (TTGV) aims to identify and develop new opportunities and areas of action in accordance with the vision of #TechnologyDevelopingTurkey; conduct competent studies with active participation in strategic subjects; report, disseminate, discuss the results; and raise an awareness within the ecosystem. The activities are intended to ensure that the diversity in the ecosystem is comprehended, bring different players and professions together, make them think together and enrich the ecosystem through a common interest. Moreover, it is aimed to contribute to the search for solutions by identifying the common problems and real needs of the real sector, which will surely create a high impact.

Strategic Focus Commission (STOK) studies are performed in order to identify the common problems of the real sector and seek solutions to these problems jointly on the basis of technology innovation. In addition to the Human Resources and Agriculture STOK studies that yielded the initial outputs in 2020, a STOK study was initiated for the field of Sustainability in 2021.

Sustainability emerges as a new and competitive perspective for economic systems where environment and natural resources are protected, all living things maintain their lives and social and ethical issues are taken an indivisible whole. Although it is the environmental aspect of sustainability that comes to mind first when it comes to sustainability, this concept actually expresses a holistic perspective that includes ecological, social conditions and economic components in one place. However, it is an undeniable fact that digital transformation provides a major leverage in the sustainability journey of the countries, regions and organizations/companies and that they will need a strategy to be designed in a way integrated with digital transformation.

TTGV has been carrying out a wide range of studies within the scope of environment, energy and sustainability for many years. The activities carried out by TTGV from the past to the present are outlined in the document **TTGV's Environmental, Energy and Sustainability Milestones in 30th Anniversary.**



On the other hand, this study aims to create an appropriate discussion platform in an effort to raise the awareness and readiness of our ecosystem in order to increase the common benefit on sustainability transformation that we can call mega-trend, which will inevitably include Turkey, as well. Designed as an exploratory research, the subject of sustainability was examined in terms of "Responsible Investing/ESG" in an effort to apprehend the basic concepts and framework while creating a road map and a set of criteria that could help with the transformation of the real sector and this work was drafted in order to bring all findings and proposals up for discussion by sharing them with the ecosystem and to make our stakeholders contribute to the greatest extent possible in this respect.

Methodology

Having adopted the qualitative research method, in this study, semi-structured interviews were conducted with a large number of experts by identifying the potential stakeholders through competent knowledge and experience and also participation in the field was provided in addition to the complementary studies and readings to that end. The interviews were conducted mostly via video conferencing method under the conditions imposed by COVID-19 outbreak and mainly in the third and last quarter of 2021. As part of the interviews, the data collected from precious academicians/researchers, public institutions, NGOs and managers of leading consulting firms who have conducted studies in the field of sustainability were analysed, as a result of which valuable opinions were obtained, making it possible to reflect the perspective of these stakeholders. Furthermore, publications were reviewed and complementary readings were performed.

This report consists of two main parts. The **first part** addresses the concepts of sustainability and ESG investing while **second part** concentrates on the sustainability framework for organizations/companies¹.

1. Translated version of this document does not include any appendix that is normally attached in the original Turkish version.

*We would like to express
our deep gratitude to all our
participants who devoted their
valuable time in performing
this study and sincerely shared
with us their opinions that were
valuable in the future outlook
of our ecosystem and in the
formation of local knowledge.*

For all your inquiries about our research, feel free to contact
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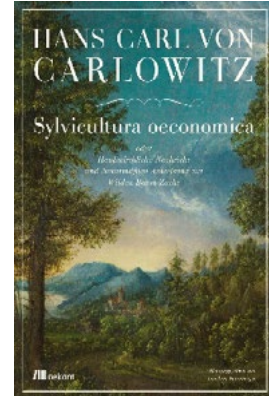
PART 1

Sustainability and ESG Investing

The first section of this part reviews the starting point, historical development and transformation of the concepts of sustainability and sustainable development and addresses the recent developments in Turkey with a special focus on the topic-related activities organized by international actors and some agreements. In the second section, the concepts of sustainable/responsible investing are explained and the basic criteria of ESG, investor strategies and discussions are addressed. Besides, ESG trends of the ecosystem and ESG's potential to be useful for the organizations/companies are discussed.

1.1. Sustainability and Sustainable Development

Concerns about sustainability have put forth a new agenda for economic development discussions for the last 50 years and although these discussions have concentrated on sustainable development over time, the essence of sustainability can be seen in the work by the German accountant and mining administrator Hans Carl von Carlowitz more than 300 years ago. In response to the disappearing forests of Saxonia, Hans Carl von Carlowitz shed light 3 centuries ago on the present day with the following sentences by using the concept of **nachhaltigkeit (sustainability)** in his book *Sylvicultura Oeconomica* (OEKOM.DE, 2021), with the cover image given on the right: “The greatest art, science, diligence and institution of the countries will rely on the manner in which such conservation and growing of wood is to be undertaken in order to have a **continuing, stable and sustained** utilization, as this is an indispensable cause without which the country in its essence cannot remain.” (300 Years of Applied Sustainability in Forestry). In support of viewpoint, the scientist Robert Gilman defined sustainability as **“the ability of a society, ecosystem or any ongoing system to continue its function into an indefinite future without using up the main resources”** (Robert Gilman, 2022).



Based on this set of ideas, sustainability aims to go over the economic solutions where the social development and welfare, protection of the ecosystem and social responsibilities make up an inseparable whole, without ever considering the consumption-oriented only. According to these two approaches, the **3 main axes forming the sustainability are environment, society and economy, prominently**. At first glance, it is seen that these 3 axes are **addressed** closely, but **independently** of each other. (See Figure 1).

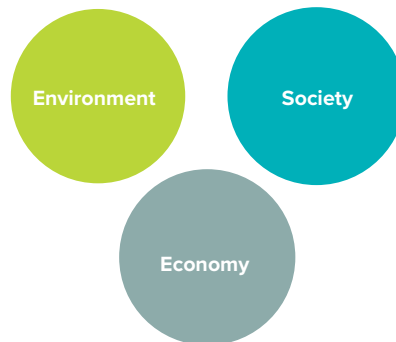


Figure 1: Economy, Society and Environment Components of Communities (Independent)

Having started with the Industrial Revolution on a global scale and gained momentum after the World War II with the capitalist/technological/industrial development and uncontrolled population growth, the structuring was rendered outdated in all areas of natural systems, giving rise to the emergence of an “uncontrolled” growth in which consumption is of top priority. In the late 1960s, the extent of damage to the environment became more and more obvious. The environment and ecology movement triggered by this awareness gained some recognition owing to the discussions on the protection and development of the environment, initiated for the first time at the **United Nations Stockholm Conference** held in 1972 (Ministry of Environment and Climate Change, 6th Environmental Status Report of Turkey, 2020). Although environmental and economic growth began to be discussed collectively at international platforms and it was agreed that environmental policies should be adopted to predict and prevent environmental issues before they arise, no initiative has been taken so far.

Towards the 1980s, the **sustainable development** approach defined as the development that reconcile, although partly, the developmentalist approaches of the 1960s and the environmentalist awareness of the 1970s and could satisfy the requirements of today without compromising the ability of future generations to meet their own requirements began when the report ‘Our Common Future’ known as Brundtland Report (1987) by the World Commission on Environment and Development (WCED) addressed this concept as the primary issue (WCED, Our Common Future (Brundtland Report) 1987).

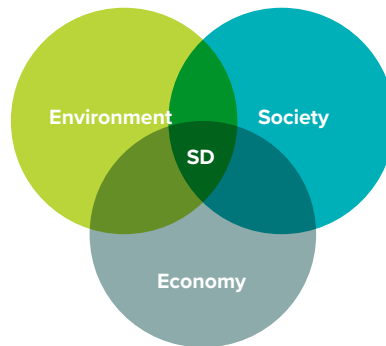


Figure 2: Associating the Three Components of Sustainable Communities (Sustainable Development)

It is observed that economic growth and profit-oriented approaches have evolved towards those approaches claiming that human development will not be ignored, in order to talk about environmental and social sustainability over time. Therefore, **development in a country can only be realized by ensuring ecological, economic and social sustainability**. Put it differently, while consuming the natural capital, it is the environmentally sustainable

economic development that looks after the requirements of future generations and maintains the balance between the economy and the ecosystem (Gurluk, 2001:4; Alagoz, 2007) (See Figure 2).

In the 1990s, the **United Nations Conference on Environment and Development** was held with a view to providing a course of action to help the societies how to achieve a sustainable development, following the definition and framework introduced for a sustainable development. As a result of this conference, it was underlined that the countries should reduce and eliminate unsustainable production and consumption patterns to ensure a continuous and balanced development and create a quality living environment for people. In addition, an action plan called **Agenda 21** for the 21st century was adopted. However, **leaving the targets to the initiatives of the countries on a voluntary basis has led to the failure of this action plan** (Turkish Ministry of Foreign Affairs, Sustainable Development, 2021). In summary, the 90s were left behind by the gradual emergence of the idea **that economic growth alone was no longer a goal but rather a tool for social improvement and development.**

Back to the early 21st century we live now, **Millennium Development Goals (MDGs)** that the United Nations planned to achieve by 2015 were announced at the Millennium Summit. With these objectives set forth, a framework was created, where the financial concerns were not a priority and community and human-oriented environmental management was not ignored (Republic of Turkey Prime Ministry State Planning Organization, Millennium Development Goals Report Turkey, 2010). It was created in 2015 by the United Nations, under the name of **Sustainable Development Goals (SDGs)**, with 17 goals supporting three main topics: **eliminating extreme poverty, fighting inequality and injustice, preventing climate change and compliance**, which are planned to be put into practice by 2030 (The Republic of Turkey Presidency of Strategy and Budget, Sustainable Development Goals and Indicators, 2019). As Figure 3 cover all of the goals, the SDGs that adopt the goals of eliminating the inequalities, encouraging the economic growth and employment, improving the cities and residential areas, ensuring the industrialization, conserving the oceans and ecosystems, generating and consuming energy in a more sustainable way, combating the climate change, improving the sustainable production and consumption and consolidating the human rights, were built on a ground relying on the success and progression of MDGs.



Figure 3: Sustainable Development Goals

Source: <https://www.un.org/development/desa/en/news/sustainable/sustainable-development-goals.html>

Based upon the idea that sustainable development could no longer be realized appropriately without the inclusion of the business world, the United Nations proposed these 17 goals by incorporating the business world into the subject. It can be said that it is actually devised as **a fully interconnected, big ecosystem in which also the economy is considered within the society and the environment covers them all.** (See Figure 4).

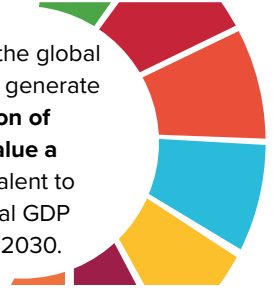


Figure 4: Holistic Approach for Sustainable Development

Sustainable Development Goals are of critical importance both on a global and local basis in order for the business world to achieve an economic development with a structure that also involves the community without harming the ecosystem. At this point, a serious need arises for transformation. However, it will be useful to take this transformation as an opportunity, not a threat to the current system. For instance, it is believed that an annual business opportunity worth of \$12 trillion emerges on the subjects indicated by the 17 Sustainable Development Goals (Business and Sustainable Development Commission, Better Business, Better World, 2017). Access to these business opportunities will primarily require transformation and change in the following points;

- Goal setting; transparent and development-oriented reporting,
- Transition from focus on shareholder to a stakeholder-oriented management approach,
- Co-management of financial and non-financial risks and opportunities with an integrated approach,
- Transformation of the products and business models,
- Monitoring ESG performance of the company according to [\(See 1.2 Concepts of Sustainable/Responsible Investing\)](#) criteria.

Embracing the global goals could generate us **\$12 trillion of business value a year** -equivalent to 10% of global GDP forecast by 2030.



Although a road map of sustainable development, which survived until today, was drawn up thanks to number of world summits held, numerous researches conducted and action plans prepared in the last 30 years, we are facing the tremendous impacts of the global climate change that involves each of us globally. Despite all these measures taken, the scarcity of resources in our world where the natural resources are depleted rapidly and ecosystems vanish due to environmental pollution continues to pose a significant threat to the future and welfare of humanity. According to the 2021 Climate Change Report published by the Intergovernmental Panel on Climate Change (IPCC), the warning that the world is on the brink of a 3 °C warming and it may lead to “irreversible consequences” on people and ecological systems unless the climate goals are achieved reminds us that alarm bells have already set off.

Contracting countries to the United Nations Framework Convention assembled for a common purpose with Paris Agreement in an effort to prevent the world from being dragged into irreversible consequences and due to the fact that the problems to be encountered go beyond national borders and require international cooperation and coordinated solutions at all levels (Turkish Ministry of Foreign Affairs, Paris Agreement, 2021). The primary goal of Paris Agreement is to keep the global temperature rise in this century 2 °C below the

pre-industrial levels and, if possible, to continue the efforts to limit the temperature rise to 1.5 °C. In addition, the Agreement aims to increase the countries' capacity to cope with the impacts of climate change and ensure a consistent flow of funding as well as low greenhouse gas emissions and a climate-resistant course of actions.

In support of the above, the EU, known for its awareness of environmental and social sustainability issues, especially in the topics such as combating climate change, reducing greenhouse gas emissions, encouraging the use of renewable energy and energy efficiency, went the extra mile in November 2019 and announced the European Green Deal, a package of initiatives as a commitment to take definitive and ambitious steps in environmental and sustainability issues. The European Green Deal is a course of action and growth strategy for sustainable economies, which includes the EU's main objectives of nullifying the net greenhouse gas emissions by 2050, ending the dependence of economic growth on the use of resource (decoupling) and leaving no one and no region behind (Escarus Blog, What is the EU Green Deal?, 2020). The EU emphasizes that **digital transformation is an important leverage** in order for this course of action and strategies to proceed in coordination with the existing systems, expressing that the transformation will make up a whole together with the digitalization. At this point, digital transformation will serve the systematics such as making measurements at strategic level, collection and dissemination of data, formation and analysis of mathematical models and evidence-based decision-making, etc. As an important detail, the Deal aims to stimulate the economy by creating new job opportunities, while cutting down on the emissions. Within the scope of the objectives specified, this growth strategy is designed to include 7 policies: **i) clean energy, ii) sustainable industry, iii) construction and renovation, iv) from field-to-table, v) elimination of pollution, vi) sustainable mobility and vii) biodiversity** (European Commission, Communication Document from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, 2019).

It is observed that the most concrete plans for the implementation of Paris Agreement were made by the European Union by way of the European Green Deal. As an indicator of the goal of carbon neutrality by 2050, it began to take shape upon the package "Fit for 55" announced in July 2021 (Council of the European Union, EU's Green Transition Plan, 2021). In this context, a preparation is made on "Carbon Border Adjustment Mechanism (CBAM)" with a view to preventing the massive energy generation from going beyond the EU borders (carbon leakage) and eventually the EU economy being affected adversely, due to the emission reduction measures to be taken to a higher level. Thus, it is considered that the taxes collected by the countries having their own Emission Trading System (ETS) and already taxing carbon emissions will be valid also at the border of EU countries in exports. However, if there is no ETS in that particular country, it is stated that the tax will be collected directly at the border

of the EU country of export. While the CBAM Regulation, which is published as a draft, is planned to take effect in 2023, it is stated that the **iron-steel, cement, aluminium, fertilizer and electricity sectors** will be covered in the first place. It is aimed to implement CBAM by 2025 gradually within a transition period. Carbon Border Tax will be in full force as from 2026 (Council of the European Union, Carbon Border Tax, 2021). Just for a reference, the equivalent of a ton of carbon dioxide (CO₂e) is around 90 euros as of February 2022 while it was in the vicinity of 30 euros in early 2021. This increase was also reflected in the annual return performance of commodities between 2017 and 2021 and the commodity with the highest value in the last 5 years was, among others, “EU carbon”. This is an issue that will have very serious financial effects on the sectors of top priority initially and then on the entirety of the real sector.

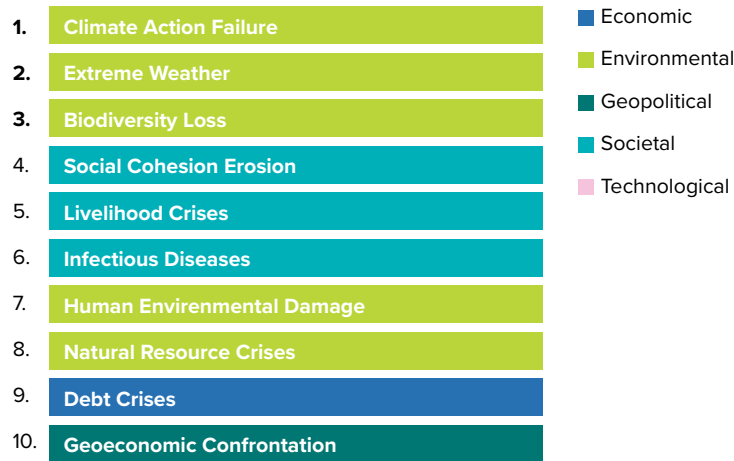


Figure 5: Top 10 Global Risks by Severity

Source: https://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2022.pdf

With these important developments in the last 10 years, it is now globally accepted that a transition to a new order is necessary for the continuity of environmental, economic and social development. In support of this, the Global Risk Report’s Perception Survey conducted by the World Economic Forum (WEF) indicates that environmental and social risks are the major potential 10 risks identified for the world over the next 10 years (See Figure 5). In order to manage the conflict between the ecosystem and economic activities and to grow the economy without ignoring the natural environment and social welfare, it is highly important to set the sustainable development as a safe way of doing business, rather than simply take it as a concept, at this point of time.

Despite all these risks and the drift of the world, the countries announced some national Carbon Neutral and Net Zero targets for this global problem. However, it should be noted that long-term goals need to be supported by tangible actions in order to limit the global average temperature rise to the target level of 1.5 °C with Paris Agreement. Some of the carbon neutral and net zero targets described are listed below as examples:

- Turkey announced that it aims to reach its net zero emission target by 2053.
- The EU aims to reduce greenhouse gas emissions to at least 55% below 1990 levels by 2030 and to reach a net zero carbon level by 2050.
- The US committed to reducing its greenhouse gas emissions by up to 52% by 2030, compared to 2005 levels. The United States also announced its target of “zero carbon emissions” by 2050.
- China announced that it aims to **peak carbon emissions by 2030** and achieve carbon neutrality by 2060.
- The UK Government announced its target of reducing greenhouse gas emissions by 78% by 2035 and reaching net zero by 2050, compared to 1990 levels.
- Sweden aimed to be carbon neutral in 2045.
- France, on the other hand, planned to make the goal of carbon neutrality legally binding in 2050 and announced that the use of diesel and petrol vehicles would end by 2040.

THE RODNEY AND OTAMATEA TIMES,
WEDNESDAY, AUGUST 14 1912.

Science Notes and News.

COAL CONSUMPTION AFFECT- ING CLIMATE.

The furnaces of the world are now burning about 2,000,000,000 tons of coal a year. When this is burned, uniting with oxygen, it adds about 7,000,000,000 tons of carbon dioxide to the atmosphere yearly. This tends to make the air a more effective blanket for the earth and to raise its temperature. The effect may be considerable in a few centuries.

Even though all these goals have been around a lot in the last few years, it was more than a century ago that the predictions began to emerge about the carbon emission caused by the use of coal. Rodney and Otamatea Times, Waitemata and Kaipara Gazette, published in New Zealand on August 14, 1912, warned that 2 billion tons of coal were burned each year, resulting in 7 billion tons of CO₂ emissions out to the atmosphere and that the planet would be getting warmer, consequently. However, they said this impact would prove dramatic in a couple of centuries. Less than a century later, we unfortunately began to face the foreseen future. It is obvious that the first big step should be to phase out the coal in order to prevent the global climate crisis and to put all these goals into action. Figure 7 shows the timetable of countries with/ without a coal exit plan.

On the other hand, according to the International Energy Agency's (IEA) Coal 2021 Report, it is reviewed that **global coal electricity production increased by 9% in 2021, as the**

Figure 6: Coal Consumption Affecting the Climate, Rodney and Otamatea Times, Waitemata and Kaipara Gazette, August 14, 1912, Page 7

Source: <https://paperspast.natlib.govt.nz/newspapers/rodney-and-otamatea-times-waitemata-and-kaipara-gazette/1912/08/14/7>

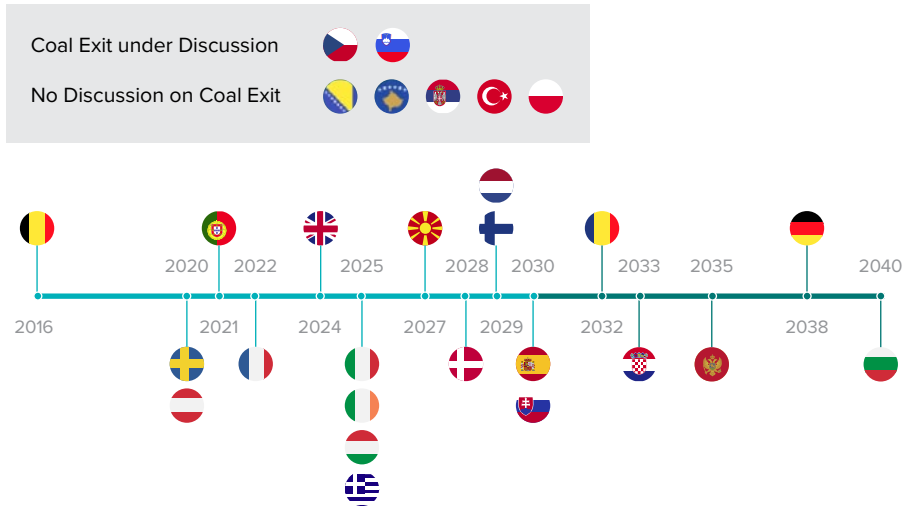


Figure 7: Coal Exit (Phase Out) Timeline

Source: <https://beyond-coal.eu/wp-content/uploads/2021/11/Avrupa-Komurden-Cikis-.pdf>

demand for electricity surpassed the low carbon supply and natural gas prices soared suddenly. While several countries discussing these issues a lot have carbon neutral and net zero targets in place and their coal exit plans are given in Figure 7, it is “confusing” that coal energy production reaches the highest level of all time. All this is a sign that this period will be a roller coaster ride and therefore challenging one.

1.1.1. Developments in Turkey

Although Turkey is a party to several conferences, summit participations and global agreements, almost all of which rely on sustainable development principles in the field of the environment, it can be said that the awareness of the dangers caused by economic growth began to raise in the 1970s in Turkey as a late industrializing country. With the effect of the awareness created by these participations, it was in the 3rd Five-Year Development Plan covering the years 1973-1977 that Turkey attached a special importance to environmental problems for the first time (Egeli, G. 1996). Besides, it is seen that the concept of environmental protection was included in the Constitution for the first time upon the adoption of the 1982 Constitution, which emphasized the importance of environmental health and balance in official state policies (Budak, S. 2000). It was after the 1990s, that environmental action plans were included in the five-year development plans, the efforts towards a sustainable development were taken into account and a considerable amount of codes, guidelines and regulations related to the environment were enacted within the years after the global summit decisions were planned at national level.

Subsequently, the Regional Environmental Center and the National Sustainable Development Commission were established in an attempt to support the sustainable development studies. In addition, Turkey firstly published Turkey's Climate Change Strategy (2010-2023) (Turkey's first comprehensive official strategy document on climate change) against the global climate crisis (Republic of Turkey Ministry of Environment, Urbanization and Climate Change, Turkey's Climate Change Strategy, 2010), followed by the Republic of Turkey Climate Change Action Plan (2011-2023) (Republic of Turkey Ministry of Environment, Urbanization and Climate Change, Climate Change Action Plan, 2011) and Turkey's Climate Change Compliance Strategy and Action Plan (2011-2023) (Republic of Turkey Ministry of Environment, Urbanization and Climate Change, Climate Change Compliance Strategy and Action Plan, 2011). It is expected that these documents will be updated in the upcoming period. Apart from these strategies and plans, Turkey published the **Green Deal Action Plan** in 2021 in order to ensure compliance to the European Union, which is the largest commercial partner of our country and to compete in these winds of change (Republic of Turkey Ministry of Trade, Green Deal Action Plan, 2021). In 2015, **it became a party** to Paris Agreement and the **Agreement entered into force upon** approval by the Grand National Assembly of Turkey **in 2021** (Republic of Turkey Ministry of Environment, Urbanization and Climate Change, Paris Agreement, 2021). Soon after approving Paris Agreement, Turkey took another step, changing the name of the Ministry of Environment and Urbanization as **the Ministry of Environment, Urbanization and Climate Change** and started to reorganize it. (Ministry of Environment, Urbanization and Climate Change, 2021). Before long, our country **declared a net zero emission target for 2053** (The Republic of Turkey Directorate of Communications, Turkey's Green Development Revolution, 2021). Although being a party to major international conventions in terms of sustainability is found insufficient at some points in terms of the local actions taken over time, it is considered that a significant step has been taken in fulfilling the requirements of global conventions.

Table 1 shows the annual and per capita CO₂ emissions of Turkey, the Member States of the European Union and the United States of America in 2020 (Our World in Data. (2020). CO₂ Emissions). As can be clearly seen in Table 1, it is accepted that our country is not among the major actors causing such a disaster, which is the climate crisis, in the history of humanity. However, it should not be mistaken that our country will not be seriously affected by the climate crisis. In addition to the recent major droughts, forest fires, floods, mucilage problems, ecological destruction, etc., various analyses and predictions show that Turkey faces serious threats due to climate and ecological changes.

Table 1: Annual and Per Capita CO₂ Emissions for 3 Selected Countries (2020)

	Turkey	EU Member States	USA
Annual CO ₂ Emissions	392,79 million tons	2,93 billion tons	4,71 billion tons
CO ₂ Emissions Per Capita	4,66 tons	5,71 tons	14,24 tons

Note: Includes carbon dioxide (CO₂) emissions from burning fossil fuels for energy and cement production. Land use change is not included.

Source: <https://ourworldindata.org/co2-emissions>

According to the Sustainable Development Report 2021, which was drafted within the framework of the United Nations Sustainable Development Goals, Turkey ranks 70th among 165 countries with an index score of 70.4. Pointing out that Turkey should take quick steps in order to achieve the 17 goals, the report notes that it makes quite a progress towards the elimination of poverty and hunger; healthy individuals; quality education; clean water and sanitary conditions; sustainable cities; responsible consumption and production as well as partnerships for goals, etc. It is underscored that Turkey should speed up its efforts by focusing on the issues indicated by 17 goals in order to achieve the 2030 goals including the **gender equality; decent work and economic growth; industry, innovation and infrastructure; reduced inequalities; climate action; life below water; life on land; peace and justice**, in order to get its share of the total \$12 trillion US worth of estimated business opportunities.

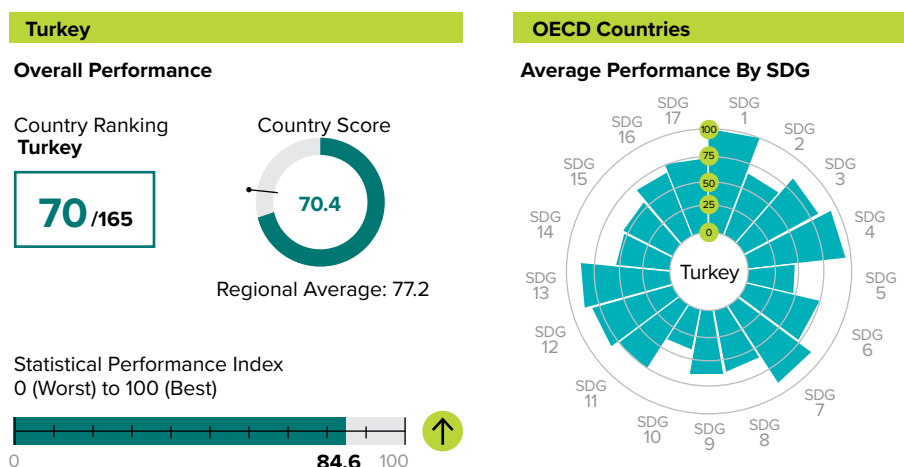


Figure 8: Turkey's Performance Rating by SDG



Figure 9: SDG Performance Rating Chart and Trends for Turkey

In order **to become a climate-resilient country**, we need to take the fastest action to acquire the ability to detect, anticipate, prepare and respond to dangerous events, trends or disturbances related to the climate. Moreover, we have to bear in mind that the problems encountered and search for solutions are mostly national or regional although the climate crisis is a global one. Therefore, the adoption of goals comprehensively is likely to make this transformation consistent, stable and durable. Considering that we now begin to leave behind the possibility of keeping the current system going with minor fixes, we then ought to build our future based on the new rules of competition introduced by the transformation. It will be observed that the insistence to maintain the current system causes more harm than good as time passes, without fully understanding the roots and reasons of the problem and without taking concrete actions. Hence, Turkey's advantage will be huge if we take this transformation as an opportunity, not a threat.

In order not to be involved in a world where we will be bound to pay global carbon taxes to developed countries and in order for our real sector not to lose its competitive power and not to be left "out of the game", it will initially be required to **increase the awareness, create strategies, set and disseminate the goals, make plans for transformation, create a budget to support the**

structural transformation and develop appropriate financial resources.

Although no detailed budget has been established yet and the size and timing of the investment that will be needed have not been defined precisely, **an important point of friction** is predicted to be the **financing since a huge amount of resources will** be needed for the comprehensive transformation of the real sector. In addition to all these, both the public **and the private sector should assume important responsibilities to make the necessary investments by effectively implementing innovative and holistic policies aimed at sustainability and digitalization**, in order for our country to benefit from the opportunities mentioned above. This transformation requires the creation of an infrastructure that can ensure compliance with the policies, regulations, standards and strategies in order to propose a common language so that Turkey can get access to the resources it can obtain from the incentives, grants and investments that will come from the financial institutions and investors.

In this context² the initial steps taken are as follows:

- Sustainability Principles Compliance Framework prepared by the Capital Markets Board,
- Green Finance as one of the 9 key goals in the Green Deal Action Plan undertaken by the Ministry of Trade,
- Sustainable Finance Framework Document prepared by the Ministry of Treasury and Finance,
- Sustainable Banking Strategic Plan prepared by the Banking Regulation and Supervision Agency and
- The Green Debt Instrument, Sustainable Debt Instrument, Green Lease Certificate and Sustainable Lease Certificate Guidelines prepared by the Capital Markets Board.

As a result of these studies, it is believed that all non-governmental organizations/ companies as well as all public, private sector and investors working on this subject should be partners in the solution. Only then can we create the necessary environment required to attract the investments of foreign capital to our country and to adopt, specify and implement the sustainability approaches that the business world and foreign capital investors attaches special importance before they actually go ahead and make that particular investment. So, we can make the most of this transformation as long as we support all our work with all public, NGOs and businesses, by starting as soon as possible to monitor, measure, analyse and create mathematical models, report and share these models transparently. For this reason, we need to prepare our policies, strategies, systems, infrastructures and organizations/companies accordingly by acting in a proactive manner, in order to reach a level to benefit from the source of financing needed for transformation.

2. The documents that can be accessed online are given in the References.

Part 2 focuses on the Sustainability Journey for Organizations/Companies, which is aimed to ensure that organizations/companies are prepared for this transformation by providing insight into the stages to be taken, while accessing the source of financing to be needed in both sustainability and sustainability journey.

1.2. Concepts of Sustainable/ Responsible Investing

As a trending concept for some time, both international financial institutions and investors take the sustainability of companies not only from an economic perspective, but also from a perspective that relates to the sustainability of the world, society, communities and people, when taking their decisions of investment. The investment paradigm that has evolved day by day and popularity of “Sustainable/Responsible Investing” practices have also been on and around the business world’s agenda within the in recent years.

The roots of Sustainable/Responsible Investing started on a belief-based basis, but later riveted by the civil rights, anti-war and environmental movements of the 1960s and 1970s (from SRI to ESG: Origins of Social Responsibility and Sustainable Investment, 2020). In the years to follow, it was used as a tool for the idea of harmonizing the investors’ portfolios with their personal values by demonstrating a stable development. At this point, the investors tend to look increasingly at a wider picture than the financial criteria. **Emerging risks and increasing awareness of environmental and social issues also affect the individuals’, organizations’/companies’ perspectives on investing.**

Traditionally, the investment decisions aim to achieve financial goals (turnover, profit, growth, etc.), increase the assets of shareholders, along with the use of the research on economic trends and analysis of the financial statements of the company etc. Investors often turn to charity (philanthropism) in an attempt to promote the positive change globally, regardless of investment decisions. They can also donate money to charities in line with their strategic goals.

Unlike traditional approach, Responsible Investing **approach requires the investors to positively affect the world and society through their portfolios.** When more information is obtained about which companies make the most progress in this field, the investors will be able to secure their positions between **being financially good and doing good for the world.**

Since Responsible Investing has different meanings for everyone, it does not have a widely accepted clear definition, but it contains a wide range of approaches. Some of the most widely used are ESG- (Environmental, Social, Governance) Investing, Socially Responsible Investing (SRI) and Impact

Investment (II). Whilst these terms can be used interchangeably by investors and organizations/companies, these concepts refer to the investment forms and approaches that include significant differences (What is the Difference Between ESG Investing and Socially Responsible Investing?, 2020). Figure 10 shows the concepts of sustainable/Responsible Investing and the relationships between them in the axis of investment.

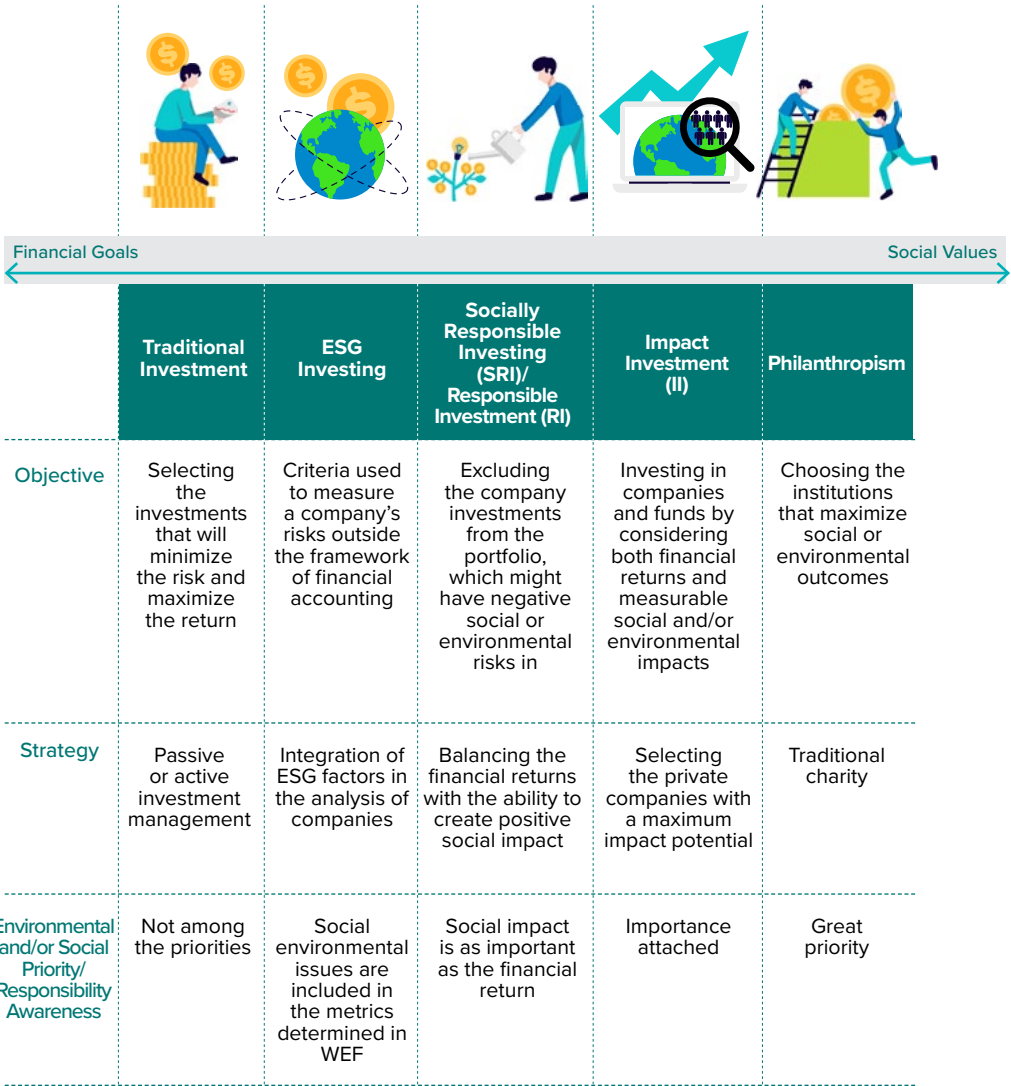


Figure 10: Sustainable/Responsible Investing Concepts in the Axis of Investment

Impact Investment – II

In general terms, any approach to Responsible Investing can have a positive effect on the society. But impact investment is **a strategy that aims to make the world a better place**. Therefore, impact investment is not only the most difficult one among other sustainable investment concepts, but it also involves major investment risks. Investments often focus on **smaller, private companies and community groups working to solve specific social or environmental problems by providing a working capital to underserved communities or by focusing on a theme such as sustainable agriculture, renewable energy, conservation, housing, health or education**. The investors in Impact investment often embrace the notion that the best way to make an impact in the world is through philanthropy. Those investments include but not limited to private family foundations, charities, donor-advised funds and other approaches that are tax-efficient for philanthropy.

Socially Responsible Investing – SRI

SRI is an investment approach that embraces the personal values by actively pursuing the ethical, environmental or social objectives as well as the financial goals. In SRI, the investors have the flexibility to **personalize their portfolios by either including or excluding particular companies, sectors or countries in their portfolios in an attempt to reflect their personal and social values**. SRI strategies may include positive or negative screening based on a set of value-dependent criteria determined by an investor. To give an example, while screening among the companies that promote positive changes in a society, a particular SRI strategy has the freedom to exclude the stocks of those companies, such as **alcohol, tobacco or gambling, etc. known as the “Sin Stocks”**.

Environmental, Social and Governance - ESG

ESG is the most common sustainable investment approach that **uses advanced analytical tools and big data in order to assess a company's efforts to promote sustainability**. For ESG Investing, the investors **take the investment decisions based on data provided by the rating agencies that value each company against a wide range of factors related to environmental, social and corporate governance**. ESG factors play an important role in understanding a company's exposure to risk and how it relates to potential return on investment. In addition, ESG analysis helps a company to **increase its potential to raise awareness and compete with the factors that may affect its financial performance**. Therefore, the companies with management teams that are aware of the significance of ESG in the market are generally more conscious of the potential risks that may turn into financial disasters some day and thus manage them more effectively. Likewise, socially responsible companies tend to combine ESG practices that contribute to long-term success, such as gender diversity and significant community engagement, with their own business

processes at top management level (Solving the Mystery of ESG: History and Current Status, 2020).

Although ESG factors are not traditionally considered a part of financial analysis, their financial importance is as critical as other details, as they cover a wide range of topics. This **is a culture not only creates trust and encourages innovation**, but also involves the subjects such as **what actions the companies take for the climate crisis, how much importance they attach to water management, how effective health and safety policies are in preventing the accidents, how they manage their supply chains, how they treat their employees and whether the ratio of women-men employees is reasonable.**

ESG functions on the three main axes: **Environment, Social and Governance**. Not only does it address the opportunities in sustainability-related areas and but it also focuses on how a company manages particular limited resources such as energy, water, other natural resources, human capital, diversity, ethics and governance and the related risks that are important to its business operations. Figure 11 outlines some examples to the types of problems that can affect long-term business sustainability of the companies and eventually affect the long-term shareholder value.

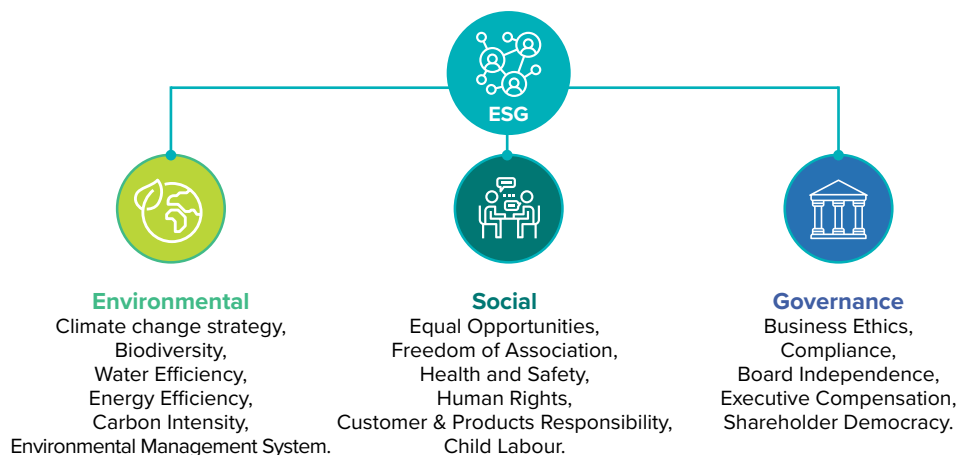


Figure 11: ESG Axis

To go briefly over the recent history of ESG Investing, we can say that it all began back in January 2004 when the former Secretary-General of the United Nations (UN), Kofi Annan, wrote to the CEOs of more than 50 major financial institutions, inviting them to join a joint venture under the auspices of the UN Global Compact and with the support of the International Finance Corporation (IFC) and the Swiss Government (Kofi Annan's Statement, 2005). This invitation was intended to find ways to integrate ESG into capital markets by nudging the sector. In the following year (2005), a report titled **"Who Cares Wins"** was

issued with the support of the Swiss Government and the United Nations (Who Cares Wins 2005). The report reveals that the inclusion of environmental, social and governance factors in the capital markets is reasonable for the businesses and leads to better results for sustainable markets and societies. In the same year, 63 investment companies including asset owners, asset managers and service providers made \$6.5 trillion worth of deals in the assets under management (AUM) that included ESG subjects (Note: As of March 2021, there are 3826 signatories in AUM, 3404 of which are investors and 422 are service providers, representing an asset of over \$121 trillion in total. See Figure 12). In 2005, the **United Nations Environment Programme Finance Initiative (UNEP/FI)** published the “**Freshfield Report**” (Freshfield Report, 2005), which is deemed as an indication that ESG subjects are appropriate for financial valuation. These two reports (Who Cares Wins and Freshfield) formed the backbone of the launch of the **Principles for Responsible Investing (PRI)**³ in 2006 in the New York Stock Exchange, followed by the **Sustainable Stock Market Initiative (SSEI)**⁴ the following year.

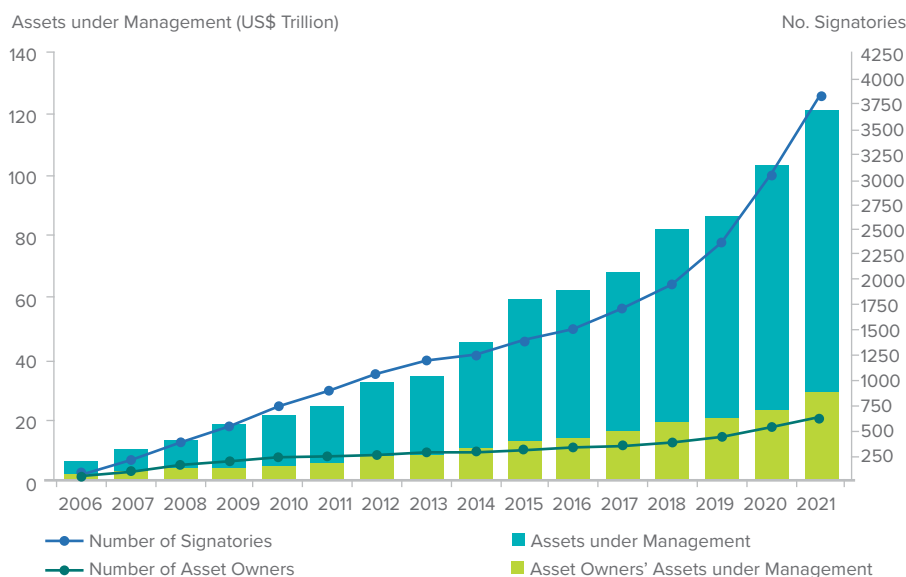


Figure 12: Distributions of Assets under Management and Signatories Covered by ESG Subjects (2020-2021)

3. As of March 31, 2021, the United Nations (UN)-supported PRI is a global initiative improving with its more than 3,826 members representing over \$121 trillion worth of assets under management. The role of PRI is to promote the integration of ESG into the analysis and decision-making processes through leadership of thought and tools, ensuring guidance and participation. (The link is given in the References)

4. Supported by the Geneva-based United Nations Conference on Trade and Development (UNCTAD), SSEI has grown up over the years, because several stock exchanges require an ESG disclosure for listed companies or it provides guidance on how to report the ESG subjects.

And a recent significant development has come from the investment sector directly. The Chairman of Blackrock, the world's largest asset manager, wrote a letter to the CEOs of all companies that Blackrock invested in in January 2020, calling for all companies in which Blackrock invested to operate in accordance with ESG criteria (Larry Fink's Letter, 2020). This letter drew the attentions to ESG once again. Also, it was decided, at WEF's annual conference held in January 2020, to standardize ESG criteria on 22 quantitative key criteria, which consisted of readily obtainable information and by which the organizations/companies could focus on goals in line with their capabilities. In addition, 34 more criteria, which are considered shallower and cover a broad value chain, have been added to the standard.



1.2.1. ESG Essential Criteria and Investment Strategies

ESG criteria are a set of standards for the operations of an organization/company, utilized by socially conscious investors to screen through the potential investments. Basically, environmental criteria consider how an organization/company performs without harming the nature. Social criteria examine how it manages its relationships with the employees, suppliers, customers and the communities within which it operates. Governance, on the other hand, deals with the leadership of an organization/company, executive wages, audits, internal controls and shareholder rights.

To outline the three basic components (Environmental, Social and Governance) of ESG Investing (ESG Criteria, 2021):

Environmental

Environmental criteria may include the use of energy, waste, pollution, conservation of natural resources and contribution of an organization/company to the ecosystem. These criteria can also be used to assess the environmental risks a company may face and how the organizations/companies manage these risks. For example, there may be some problems regarding the ownership of contaminated land, the disposal of hazardous waste, the management of carbon emissions or the compliance with the government's environmental regulations.

Social

Social criteria focus specifically on the organization/company's business relationships. As an example; it is based on questions such as, "Does the organization/company work with those suppliers who have adopted the

same values as it claims to have? Does the organization/company donate a percentage of its profits to the local community or encourage the employees to volunteer there? Do the working conditions of the organization/company attach great importance to the health and safety of its employees? Are the interests of other stakeholders taken into account?”

Governance

With respect to governance, the investors may be interested in whether a company uses appropriate and transparent accounting methods and whether the shareholders can speak up in important matters. They may also seek assurances as to that the organizations/companies will avoid conflicts of interest when selecting the board members, will not use any unnecessary political contribution in an attempt to get unduly favourable treatment and will of course not engage in illegal practices.

Of course, no organization/company may be able to perform high on every criterion in each category. Therefore, it is critical for investors to decide what is most important or valuable to them. To evaluate an organization/company against ESG criteria, the investors can shape the investment decision based on a wide range of criteria. Example 1 includes a case study for the implementation of these criteria (ESG Criteria, 2021).

Although a number of rating agencies/companies operating in this field have emerged, unfortunately, there is no generally-accepted standard or guideline for creating an ESG rating. In fact, important steps such as methodology, scope, method, process, standardization and valuation may differ greatly due to the fact that rating providers implement their own criteria. For this reason, in the annual conference of the World Economic Forum held in 2020, a step was taken to standardize certain criteria to some extent, following the resolution taken on ESG criteria consisting of readily obtainable information and focusing on the targets in line with the company’s own capabilities.

22 key criteria that focus primarily on the internal operations of an organization/company **include the priority issues affecting the composition of the governance body and stakeholders, and the implementation of the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD).**

In contrast, 34 expanded metrics and disclosures are controversially more superficial. However, it includes the **full scope of the value chain of a business.** 34 expanded metrics and disclosures include the topics such as aligning the strategies and policies with the goals of Paris Agreement (Measuring Stakeholder Capitalism: Towards Common Metrics and Consistent Reporting of Sustainable Value Creation, 2020).



Example 1

ESG criteria used by UK-based Trillium Asset Management before taking its investment decision

With \$4.8 billion under management as of September 2021, Boston-based Trillium Asset Management uses a number of ESG factors to help identify the companies positioned for a strong, long-term performance. Determined by analysts which partly identify the problems faced by various sectors and industries, Trillium's ESG criteria include the following:

- Companies operating in higher risk areas, exposed to coal or hard rock mining (quarries), nuclear or coal energy, private prisons, agricultural biotechnology, tobacco, tar sands or weapons and firearms,
- Or companies with big or new debates about human rights, animal welfare, environmental concerns, governance issues or product safety.

The criteria that Trillium seeks or considers affirmative for ESG:

Environmental

- Publication of environmental, carbon or sustainability reports,
- Limitation of harmful pollutants and chemicals,
- The goal of reducing greenhouse gas emissions,
- Use of renewable energy sources.

Social

- Operating an ethical supply chain,
- Promoting the rights of under-represented social groups within in the society, and promoting the diversity,
- Availability of policies that provide protection against sexual abuse,
- Paying fair wages.

Governance

- Adoption of diversity by the boards of directors,
- Adopting a corporate transparency (accountability),
- Assignment of an independent CEO, independent of the chairman.

Considering with which main strategies the above-mentioned criteria are used, the following ESG Investing Strategies are commonly used by investment funds/portfolio managers:

- **Exclusionary** – Portfolio Manager determines the categories of companies they exclude from their portfolios, and invests in others.
- **Single Theme** – Portfolio Manager prioritizes a theme within ESG (e.g. criterion: gender equality – standard: whether there is at least one woman in key leadership roles), includes those adequate companies in their portfolios, and creates an investment fund suitable for this theme (woman entrepreneur fund, clean energy fund, etc.)
- **Best In Class** – Portfolio Manager invests in the companies with the best ESG rating in each sector. Here, the companies are evaluated comparatively with their sectoral rivals.

Investors, on the other hand, tend to look at the name of the fund and the fund manager before making any decisions, rather than have detailed information about the content of the fund in which they invest. These criteria keep on improving, different assessors can pick up the best set of criteria for them and perform the rating accordingly.

1.2.2. ESG Trends of the Ecosystem

It would not be wrong to say that the trend in Socially Responsible Investing (SRI), which has been in existence for a longer period of time contributed to the rapid growth of ESG Investing. However, unlike SRI, ESG is based on the fact that the factors based on ethical and moral criteria, which are vulnerable to negative contents such as investing in alcohol, tobacco or firearms, are appropriate financially.

Traditional institutional investors have initially been reluctant to adopt this concept, with a shallow view that will argue their current roles are limited to maximizing the shareholder values, regardless of environmental or social impacts or broader governance issues such as corruption. Unfortunately, such discussions are still around. However, with the formation of the data showing that ESG issues had positive financial effects on the companies, the tendency in these opposing views began to recede. **In several major markets, including the US and the EU, ESG integration has increasingly begun to be considered and adopted as a part of existing business processes. Sticking to these trends closely, several investors are aware that ESG data about the companies is of vital importance to understand the corporate purpose, strategy and management quality of the business.**

However, the collection of corporate data on ESG subjects has **steadily improved** since the introduction of **Global Reporting Initiative (GRI)** in 2000, an independent, international organization that help the businesses and other organizations/companies to take responsibility for these effects by providing them with a globally common language to communicate the relevant effects. Today, more than 5,000 companies worldwide use GRI standards (Sustainability Reporting is Growing, with GRI the Global Common Language, 2020). Following the GRI, International Integrated Reporting Council (IIRC) and the US-based Sustainability Accounting Standards Board (SASB) helped to improve the sector-specific reporting and its suitability for investors. Overall, ESG knowledge continues to reform the market and, although its quality is not excellent yet, it keeps on developing day by day.

As mentioned at the beginning of the report, environmental disasters are the primary risk for businesses, especially in the last decade. This is closely followed by socio-political and technological factors. Due to the rapid development and change of the world, traditional systems and literature are unfortunately no longer sufficient to overcome today's challenges. The biggest and the most important of one is the climate crisis, the impacts of which are already increasing for both the investors, businesses and all living things. Globally, the governments and business leaders gradually seek ways to achieve an effective climate action.

Just over fifteen years ago, the investors would not take the impact of the climate crisis on the social and labor-related issues as a serious financial risk. Today, however, there is a major trend towards ESG perspective, since the new business models are closely associated with sustainability, responsible practices and resilience. Moreover, ESG fund assets under management in Europe grew to \$3.9 trillion in September 2021 while sustainable fund assets in the USA grew to \$330 billion. It is fair to say that awareness and psychology brought along by COVID pandemic were also effective in this increase.

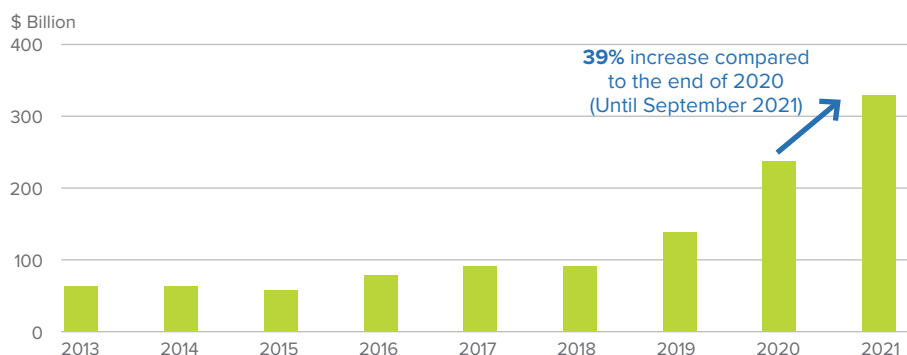


Figure 13: U.S. ESG Fund Assets under Management
Source: <https://sustainfi.com/articles/investing/esg-statistics/>

It has become extremely critical to integrate ESG processes into a business, not only to attract the investors, but also to avoid destructive Green Swan incidents. In addition, as the millennial (Y) generation becomes the decision makers, the managers with more and more environmental awareness will take the control, as a positive development. Compliance with these standards has considerably become a necessity, not a choice, due to ESG regulatory arrangement shaped by the recent activities around the world. Taking all these aspect into account, a few trends that will shape ESG Investing in the near future are listed below:

- **Deep tech and data described as a new oil:** Deep technology and consumer data have the great potential to change the pace of investment. While there are some concerns about the use of this deep technology, it can be interpreted as the way to unlock the complete, future-ready, resilient and sustainable businesses with initial digital solutions, smart systems and reporting mechanisms.
- **Increased ‘green-collar’ jobs and numbers of staff:** Owing to the remote working methods imposed globally due to lockdown periods experienced during the COVID-19 pandemic as well as the newly emerging jobs and occupations, senior managers and staff have become more aware of the emissions generated by way of commuting to/from (Working from home can save energy and reduce emissions. But how much?, 2020).
- **More climate-conscious supply chains:** For investments in production and logistics projects in 2022, clean energy initiatives that are the driving force behind all supply chains are expected to accelerate, in order to reduce total greenhouse gas emissions owing to the gradual coal phase-out decision mutually agreed by the countries at COP 26 (A More Sustainable Supply Chain, 2020).
- **Accelerating the banks’ transition to a low-carbon economy:** Allocation of resources can be a key driver for ESG Investing, in order to provide responsible and strategy-based examples of usage for a sustainable financing. Green finance that would once be approved by the world’s leading banks can make a major contribution to a low-carbon economy (Bank 2030: Accelerating the Transition to a Low-Carbon Economy, 2020)

Given the current circumstances, it is predicted that the interest in ESG Investing will further increase, without ever slowing down. Thanks to the new technologies to support this approach, ESG Investing is thought to be included in the portfolios at a higher rate as ESG data of a better quality is obtained. Furthermore, the market, raw materials, regulations and arrangements, technological environments as well as investors’ demand are expected to play a major role in the expansion of ESG Investing.

1.2.3. Critiques on ESG Investing

The amount of financial resources and the number of investors that have been included in ESG funds are increasing, in line with the perception that ESG approach is good for the world and society as well as the companies and shareholders. On the other hand, there are considerable amount of approaches that can be expressed as distant or suspicious, not against the principles of ESG investing, but against the way of its current implementation. These approaches are outlined as follows:

- Research shows that there is a correlation between financial performance of the businesses and ESG performances. However, it is unclear whether successful companies adopt the systematics of ESG assessment, or the other way around, i.e. the companies that adopt the systematics of ESG assessment become successful.
- ESG methodology, as it stands, compares the companies within the same sector. In other words, a company that acts more responsibly than its counterparts can get higher scores. The assessment is basically about how much ESG factors pose a risk to the economic value of the company. Namely, the distinction between the companies, products and sectors may not always be investigated. Therefore, various companies with products (tobacco, fossil fuels-based energy, etc.) that can be considered problematic in terms of sustainability can get high ESG scores and end up ranked high in sustainability indices. According to the viewpoint keeping distance from such implementation of ESG, being less evil doesn't necessarily mean non-evil. The sectors to be avoided⁵ in a genuine Sustainable and Responsible Investing have to be excluded from the investment list and also some sectors⁶ (and technologies) need to be supported particularly by making investment for a better and sustainable world, that is, the distinction between the sectors and technologies needs to be made. In support of this view, it is also mentioned that new indices and funds involving such organizations are needed in order for ESG to get closer to its real objective.
- There is a thought that ESG and sustainability approaches have the potential to reduce "profitability" compared to companies that do not adopt these approaches as they call for investment, place new financial burdens to companies, put new demands on products and therefore introduce additional costs as well as administrative complexity. For this reason, it is believed that mainstream investors might have tendency to avoid this approach or include the same in their portfolios in a limited way.

5. e.g. alcohol, tobacco, weapons, gambling, nuclear energy, fossil fuels-based energy, particularly coal, and agriculture that increasingly uses heavy chemicals for mono culture, the sectors producing food/consumer products, etc. that are addictive and harmful to human health (sugar, obesity, etc.).

6. e.g. organic/good agriculture, renewable energy, carbon capture, recycling/recovery, clean transportation, etc.

In fact, there are studies that concluded that “sin stocks” (tobacco, alcohol, gambling, etc.), which labelled as quite the opposite of ESG, can yield higher profitability. In summary, it is thought that there could be a limit to the extent these practices are disseminated without a broad awareness, serious regulations and/or sufficient market/customer/consumer/ social pressure.

- Another main problem is that there is no single and clearly-defined universal ESG standard and methodology. What matters is how ESG is defined by the investor and how the organizations/companies are scored in each of ESG factors. For instance, a good part of social impact is qualitative and quite difficult to create numerical values for this impact. There is relatively little consensus within the ecosystem, about which social impacts will be measured and what weights will be given to them.
- In addition to the fact that definitions and ratings are open to subjectivity, a “combined” score is obtained with the weights given by the rating agencies. In this case, an organization/company that underperforms at some factors can have a high combined score as long as it is good at others. Moreover, it is also considered that different rating agencies can come up with different rating scores for the same company from time to time.
- It is often emphasised that new ones should be added to ESG factors, with an increased expectation to consider new factors and to include new measurement systematics in ESG ratings. In particular, market failures, monopoly and monopsony in which the buyer or seller has limited or excessive competitive power, negative externalities where a third party is directly damaged by the business, and other environmental damage such as deforestation, polluted oceans or the atmosphere blocked by emissions are among the recommended factors to be added.
- While some investment funds claiming that they are ESG investors and include those companies with high ESG ratings in their portfolios, they also include high-yielding companies operating in the fields such as fossil fuel/energy, defence/weapons, gambling, industry, etc. that involve some signs of environmental issues due to them. The funds may not even be interested in those companies that contribute to sustainability directly, e.g. clean energy, organic agriculture and recycling. Or, in other words, ESG is not used as an investment that reflects a properly embraced attitude; but rather for the purposes of portfolio diversification, public relations and “rhetoric” or pretension.
- It is sensitive to deceptive and greenwashing practices, as well. For example; “S” (Social) score of a fossil fuel/energy company increases when it donates, while “G” (Governance) score increases when it assigns either a women or disadvantaged individual to the board of directors (Greenwashing, 2021).

Even though these types of steps are very important, it is mentioned that they are promoted in the public relations and external communication and some other could probably be concealed. It is considered that evidencing based on audits and data, rather than the declarations, are critical.

- There is also a point of view that the businesses adopting the sustainable investment, particularly those focusing on ESG, simply consider refraining from investing in the shares of certain companies (divestment) or prefer short selling them. This is necessary, but not sufficient. First of all, while an investor sells and another buys. Secondly, as mentioned before, responsible investing is not only about avoiding investing in evil (or shorting), but also preferring to invest in good. In addition, the purchases and sales made in the second market have hardly any direct effect on the decisions and operations of the company. What's more, the company may also tend to buy back its own shares, as the share prices plummet.
- The subject also has a “perception” aspect. It is an incomplete perception that individuals do their part about sustainability and even the responsibilities are fulfilled with the savings transferred from one fund to another. Despite the steps taken by managing the investment preferences to combat the climate change/compliance and for a sustainable future, there are many more actions yet to be taken.

Nevertheless, constantly evolving ESG approach is a decent starting point for investing for a better world, even with the existing forms of practice that can be described as “imperfect/incomplete” due to the subjectivities it consists.

1.2.4. How Can ESG Approach Create Value for Investors and Companies?

Global challenges such as climate risk, increased regulatory pressures, social and demographic changes, data security concerns represent new risks in addition to the increased risks for investors and firms. They need to integrate ESG strategies into their business processes in order to prepare and accommodate themselves for these risks and to turn them into opportunities. The values created by this integration for companies and investors are listed below:

Agreeing on the Same Approach

While many investment companies formulate investment policies to guide ESG Investing decisions, they make statements about how ESG will be positioned within these policies. The vast majority of these investors plan their long-term investments by supporting the companies that match their ESG goals and declarations and the companies that are superior in ESG priorities based on the ratings given by the agencies that perform ratings in line with these goals.



Companies can receive/attract the investors by delivering transparent performance reports that address investors' ESG priorities and their ESG rating accordingly.



Investors, on the other hand, can reduce the risks by investing in those companies with high resilience in environmental, social and governance terms, which are worth investing and consistent with their goals and declarations (as they might think).

Ability to Make a More Accurate Assessment



In the 21st century, ESG participation helps a company provide its shareholders and stakeholders with the most accurate and quality data. From this point of view, the investors make their investment decisions based on the information they can have access in the current situation.



Therefore, the companies are required to share their reports and ratings transparently and accurately in line with ESG goals of the investing company, if they want to get investment. In the event that these are missing or incomplete, the investors may assume that the company has never worked on a given ESG metric. This situation may cause the investor to remove the company from its portfolio.

In order for investors to make an accurate assessment, ESG reports prepared by the firms and analyses from the rating provider should be interpreted objectively. For this reason, the investors need to employ proper workforce to help them gain competence in this respect.

Ability to Set Up a Governance as Powerful as the Business Strategy



Integrating ESG strategy into existing business processes strengthens the businesses thoroughly in their efforts to embrace a competent and efficient governance. The time and resources spent by the companies will play an important role in adopting this strategy and strengthening the intellectual capital both in the short and long term.



Investors can easily deduce whether the company's ESG practices are adopted comprehensively and how much the intellectual capital of the companies matches this issue, by simply concentrating on the governance issues that the companies have difficulty in declaring. Although the score received by the firm from the rating providers is high as a whole, the deficiencies in the governance side can be considered an indication that there is a problem in essence.

Hit Two Birds with One Stone: Efficiency and Cost Saving



The use and disposal of raw materials, energy, water needed for production have a direct effect on the profitability of companies. The Companies that integrate ESG into their business processes can make a clean and efficient production that helps reduce the operating costs as well as environmental footprint. All of this will not only reduce the environmental footprint, but also save the firm the costs of nonconformity between different geographies with stricter laws, where the operations are carried out. It will not be wrong to describe these practices that are not carried out by the companies that do not embrace the subject on the ground of financial issues, as a return or even an opportunity, rather than a piecework or disadvantage.



Investors often change their ESG priorities according to market trends, new regulations or increasing risks. Companies focusing on raw materials, efficiency and waste reduction can be considered to have prepared themselves globally for the raw materials and natural resources crisis, to some extent. And that will reduce the risk of the investor a little more.

Managing the Risks



The COVID-19 pandemic that has been experienced all over the world gravely affected the markets globally. On the other hand, the assets and number of companies implementing ESG subjects are increasing day by day. ESG's sensitivity in proactivity and risk management shows why these companies did not suffer excessive depreciation during the COVID-19 pandemic. Companies point out that being more prepared against unexpected situations such as epidemics and natural disasters, rather than facing the crisis, is the right way out for risk management.



Investors need to choose the companies that make use of ESG strategies, in order to adapt to and deal with the aftermath of especially COVID-19 pandemic and unexpected natural disasters. This is because it is preferred to invest in those companies with structures and systems as well as long-term applicability so that inevitable risks in the future such as the climate crisis that we have faced in the last 10 years can be coped with.

Attracting and Retaining Qualified Human Resources



One of the key findings of Human Resources Research in the Technological Innovation Ecosystem published by TTGV is the difficulties experienced by the industry in attracting and retaining high-quality human resources. Communication with internal stakeholders of the organization/company is critical for the adoption and implementation of ESG strategies. It is considered that transparently sharing this type of work done/tried to be done and the engagement of all parties as part of this process can be effective in achieving the goals of the organization/company. According to a 2016 study by Cone Communications on Millennial Employee Engagement, 64% of millennials takes a company's social and environmental commitments into consideration when deciding where to work. With all this in mind, having a company mission aligned with the employees' personal values can promote stronger employee engagement, which can reduce employee turnover and therefore increase the productivity, all of which nourish a higher profitability.

Creating a Culture



Future markets, policies and social systems will call for cleaner and healthier products and services. Effective ESG participation is essential for the companies to build a culture and for internal and external stakeholders to have the expertise and business ethics to help meet these demands in the future.



ESG is adopted by the investors as an effective method for establishing a consistent link between the expertise within the company and the profitability of the company upon the emergence of values that back up the future innovation.

To Exist in the New Order: Gaining a Competitive Advantage



If the businesses have a strong ESG approach, it will be easier for them to enter the new markets and expand their operations in the existing markets. According to the Sustainable Shopping Report published by Nielsen in 2018, approximately half (48%) of the US consumers say they will definitely or probably change their consumption habits in an attempt to reduce their impact (footprint) on the environment. From 2014 to 2018, these influential consumers increased the sale of sustainable product by about 20% with a compound average growth rate four times higher than the traditional products. In addition,

according to GreenPrint’s Sustainability Index report published in March 2021, 75% of millennials are willing to pay more for an environmentally sustainable product in the US and 77% of the total sample size is concerned about the environmental impact of the products they use (Note: There is no comprehensive research on these issues in Turkey yet). Considering all of the above, raising the awareness of consumers on environmental and social issues in the new world order (system) will encourage the companies to adopt this change by affecting the value chain bottom-up. With this insight, it is critical for companies to stick to this approach if they wish to adapt to the new order.



With respect to the investors, the consumer interaction affecting the behavior of the value chain and the investments to be made in companies that are not unconcerned about it support their willingness to engage in the new order. An ESG-oriented business can deliver profitable growth by developing sustainable business practices and building a loyal customer base. This is highly preferable by the investors.

Achieving a Long-Term Loyalty

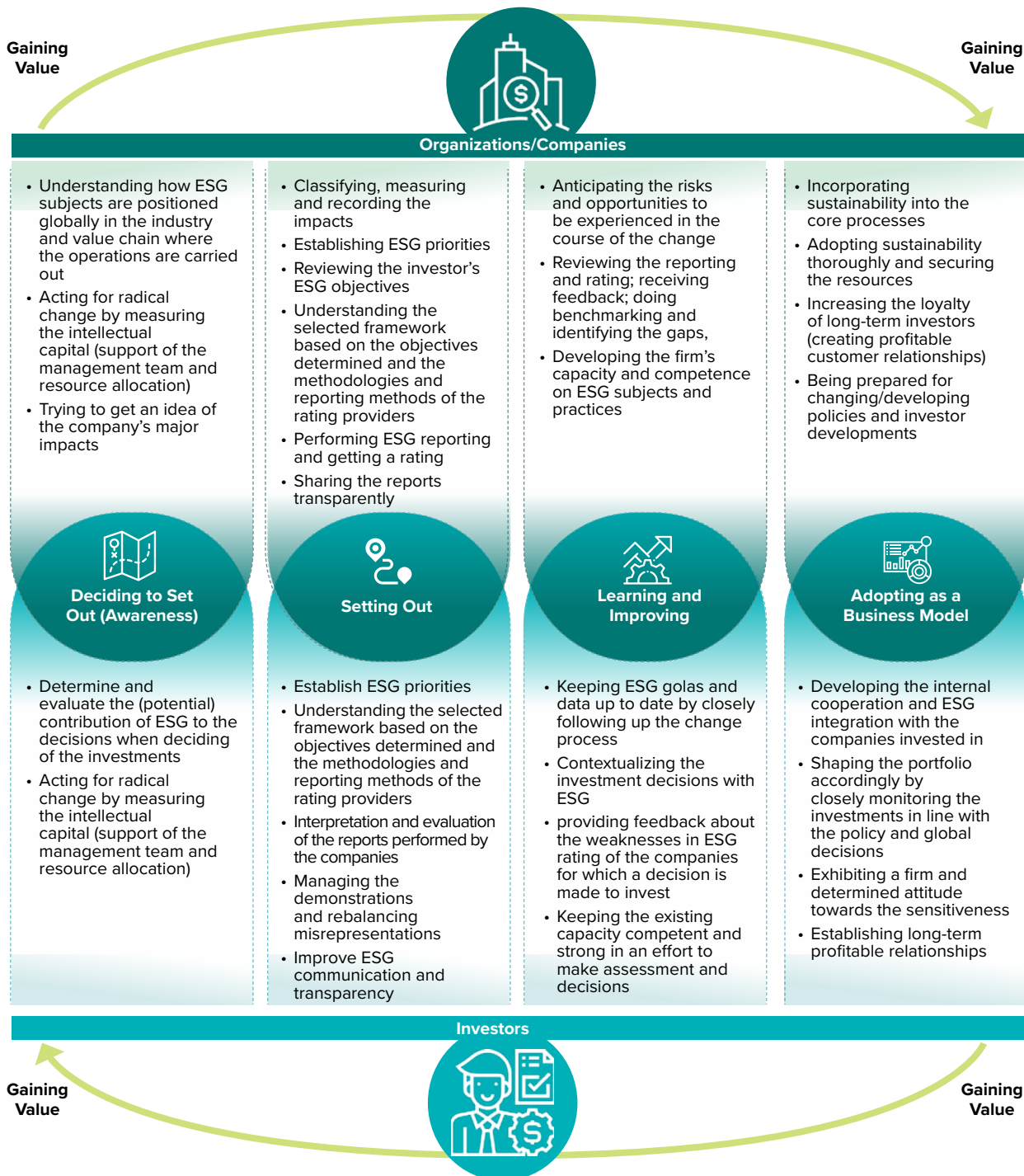


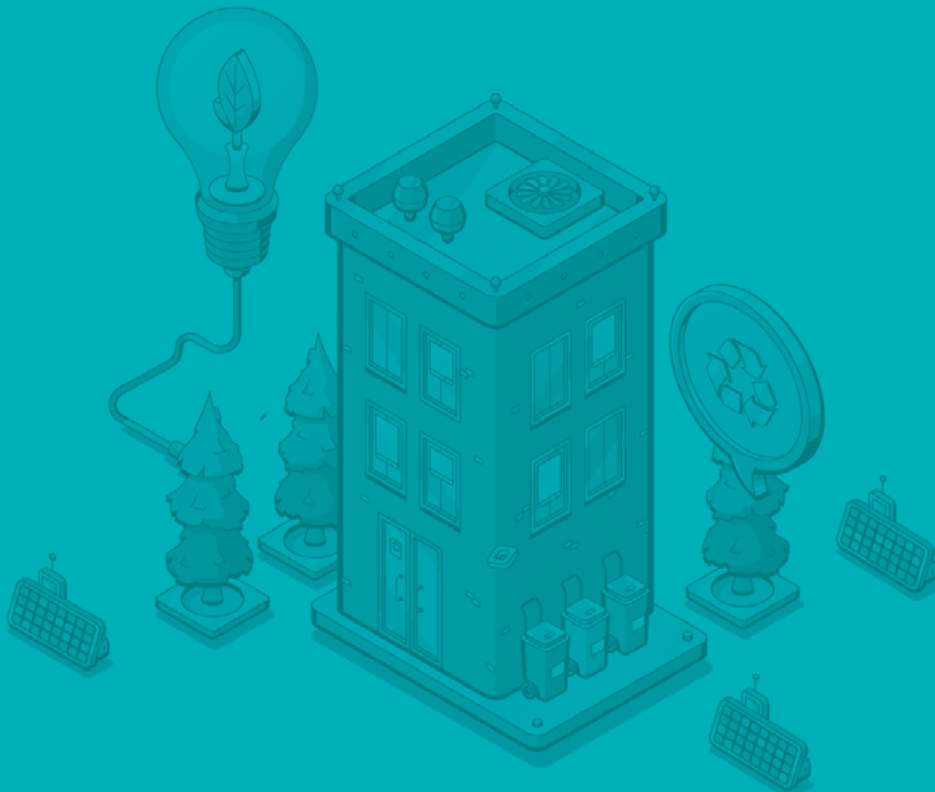
All ESG principles, including financial performance, reputation, employee productivity, risk management and many more, give priority to long-term metrics. Long-term success builds the confidence of shareholders and stakeholders.



Investors can have an insight into the firms’ long-term success and transparent practices.

The table below gives a summary of the subjects outlined above.





PART 2.

Sustainability Journey for Organizations/Companies

The first section of this part outlines the sustainability “transformation” journey of the organizations/companies as well as a generic course of action prepared to help them adapt to ESG principles while accessing the financing source they may need in this journey. The next section addresses a set of criteria derived from a broad screening, based on the criteria to be faced in ESG rating by the organizations/companies that determine the road map. In the last part discusses the complementary points that will be decisive in the competitiveness of organizations/companies.

2.1. Sustainability (and ESG) Transformation Roadmap for Companies/Organizations

This section provides a generic flow about what steps to be taken by the organizations/companies and various tips for sustainability transformation, considering each organization/company will have different requirements (See Figure-14).

It should be noted that some organizations/companies (what we call pioneers) have been working on this subject for decades, performing tests/experiments and transforming their processes and products. Sustainability transformation should not be perceived simply as a fast or easy process that can be put into practice in an instant. It may not be possible to transform in a short time by establishing an organizational department, employing a few people, outsourcing some support and consultancy. Therefore, transformation should be taken as a repetitive journey, rather than a one-off effort, in terms of sustainability (and ESG - environmental, social or governance) management.

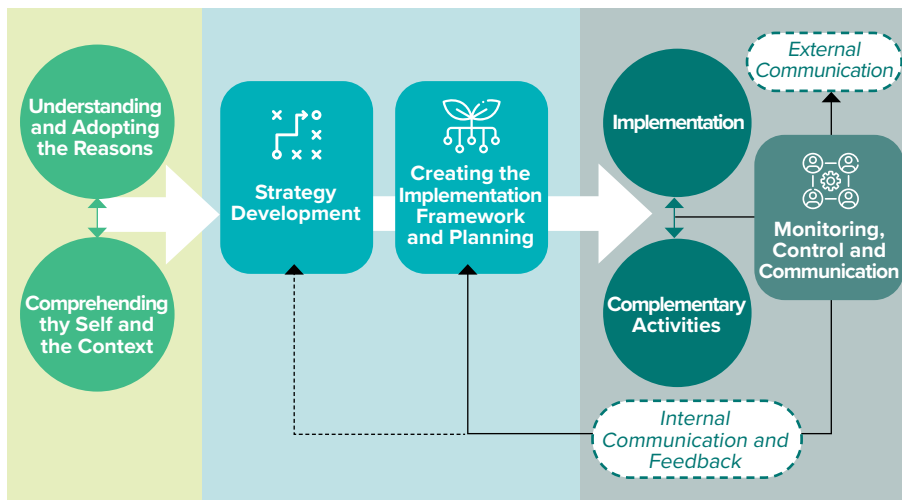


Figure 14: (Generic) Sustainability Transformation Process

Organizations/companies may need some support in this transformation process. But, that alone will not suffice. Regardless of how much external support, consultancy, etc. is received, this process is a transformation process that will be adopted, implemented and achieved by the organization itself.

BEGINNING

In order to transform an organization/company by positioning it in a way that it will be successful in the face of the “mega trend” of the sustainability, it is aimed to determine the right goal with strong questions in the beginning and to raise awareness, especially at the leadership level.

Understanding and Adopting the Reasons

First of all, it is required to specify clearly why the organization/company needs transform and the areas for transformation; to understand the scope of the transformation and to ensure that there is an agreement for adoption at the leadership level in this respect. To this end, it will be a helpful to ask and answer the following questions:

- Why should we change? Why should we make such an effort?
- Are we aware of what kind of transformation we are going through?
- What are the risks/opportunities of transformation?
- What are the risks of failing to transform?
- Are we aware that there may be a need for the organization/company to redefine and reposition itself and its products, as needed?
- Is the continuous support of the organization/company’s leaders/managers guaranteed for the transformation process?

Notes:

- *It is obvious that transformation has a price and a risk. On the other hand, the cost of failing to transform may be greater. It would be appropriate to take both into account.*
- *There will be opportunities as well as risks and threats for organizations that have a clear vision of sustainability, developed a good strategy within the framework of the right goals, set their goals appropriately, and created and put into practice an implementation plan that will ensure a continuous progress.*
- *The impact and return of sustainability efforts to the organization/company may not always be tangible or measurable. There will be significant returns that can be considered qualitative such as brand value, reputation, customer loyalty, attracting and retaining qualified human resources, increased productivity in the workforce, etc.*
- *It should be embraced that it is not simply about “reporting”, but also a requirement for a comprehensive transformation, on top of sustainability and digitalization.*

- *First of all, it is required to change the mindset and raise an awareness. Transformation may not be easy or possible, unless you are convinced.*
- *The organization/company and its stakeholders should feel the ownership, leadership and commitment of senior management.*

Comprehending thy Self and Context

Each sustainable organization/company will be positioned differently, exhibit different attitudes and the legislation to be considered will vary depending on the market conditions, geography, business operation and supply chain. To plan the transformation, it would be appropriate for the organization/company to recognize and define itself from a sustainability perspective. Here are some questions that can help with this adaptation:

- What are the sustainability priorities and objectives of the country and the sector?
- What is our industry, sector and our position in our industry (e.g. B2B/B2C, OEM/auxiliary industry, goods/services, the relative size compared to the industry, etc.)?
- Who are our current and potential customers and their customers? (Domestic and foreign)
- What is our corporate impact in terms of sustainability? Whom and how do we influence? (Raw material, supply chain, operations, products (during the product life cycle) and in the context of value chain) [It can be assessed in terms of UN SDGs – for a more detailed set of criteria, see Section 2.2.]
- What are the organization's inputs and outputs? (For example; energy, water, as a receiver, solid/liquid/gas released to the receiving environment, etc.)
- Do we know the regulations, frameworks and standards (national, international and those with a potential to be requested by investors and customers, etc.) that are applicable, need to be complied with or may be required?
- What are the practices of existing (and potential) competitors; how does it affect our organization/company?

Notes:

- *It is important to apprehend where the organization/company has and can have the greatest impact on its employees, stakeholders and the environmental and social systems around it along the entire value chain. It is advised to list all impacts from*

the products manufactured to production process to product life cycle to greenhouse gas emissions to water use to employee equality to safety and prosperity, and classify them in 4 main areas (governance, people, planet, prosperity) as given in Section 2.2. In this classification, it is necessary to determine the areas for improvement on each axis.

- *The field of sustainability and its problems are multidimensional and multidisciplinary. It is an approach that will be insufficient to take the context as technical issues only and to limit it to environment or environmental engineering.*
- *It is also recommended to refine the due diligence (assessment) and to conduct various complementary analyses for a more appropriate planning and implementation. These analyses may include:*
 - *Understanding the change in the expectations of the market and customers,*
 - *Evaluating how the sustainability transformation (across operations, products and supply chain) can create value and how it will be perceived,*
 - *Analysing the threats and opportunities in the light of scientific findings,*
 - *Understanding what potential technological developments are,*
 - *Identifying the “Best Practices” that can be adopted,*
 - *Detailed comparison with the competitors (Benchmarking),*
 - *Assessment of supply chain risks and accessibility to critical production inputs and raw materials (and price change).*
- *It is required to comprehend ESG goals of the existing and potential investors of the organization/company and then assess whether these objectives are in line with the organization/company’s own objectives. This assessment requires the following steps:*
 - *Identifying the basic shortages and areas for improvement,*
 - *Identifying how the time and resources needed for development should be allocated,*
 - *Understanding ESG framework on which the ESG goals of the investors are set,*
 - *Learning the relevant ESG framework, reporting according*

to criteria and then building internal and external capacity that can be rated by the rating providers.

- *To help understand what other key players in the industry are doing for ESG practices; competitors' ESG scores and their descriptions should be examined and compared to those of the organization/company. This comparison should be seen as an opportunity to identify the weaknesses and strengths of the organization/firm and to develop the existing ESG strategy.*

BEGINNING

Once the appropriate objective is set and awareness is raised to a certain extent within the organization/company, it will then be required to address the topics of strategy development, framework formation and planning.

Strategy Development

- Creating a vision about sustainability and incorporating it into the organization/company's strategy,
- Reviewing how the sustainability culture will be established/institutionalized within the organization/company,
- Reviewing how to extend the efforts further across the value chain,
- Determining and prioritizing the sustainability goals and options for the organization/company,
- Creating a course of action for sustainability transformation,
- Sharing the organization/company's vision for sustainability and eventual transformation.

Notes:

- *Organizations/companies will be deciding on what they will end up with, rather than what they will do, while developing a sustainability strategy.*
- *It is critical that the organization/company has a clear vision for sustainability and eventual transformation, and that everyone embraces it properly. The importance of leadership and internal communication arises at this point.*
- *It would not be wrong to expect that customer capital (existing and potential customers) and market demand, regulatory obligations as well as the areas where the organization/company has the most impact on the planet should be highlighted while identifying and prioritizing the sustainability options.*

- *Not only is the organization/company required to transform its own operations, but also the transformation will have to be incorporated into the value chain. It is recommended that stakeholders (partners, suppliers, customers, vendors, public and even NGOs), starting from the critical ones, be involved in the governance initially and then in the formulation of strategy. It will be useful to refine the sustainability goals according to the feedback received from critical stakeholders.*
- *The transformation we have been facing is a journey, an investment and a transformation of mindset that could take a long time. Hence, the sustainability is to be a part of the corporate culture. Even if the subject of sustainability is assigned to the coordination of a department or a function, it is still a topic that has to be embraced by everyone within the organization. Therefore, a proper and open communication is of great importance.*
- *The leadership and commitment of senior management, the establishment of governance ensuring the engagement of each stakeholder in the process, the effectiveness of communication will be decisive in the success of the process..*
- *Although external communication is very critical, a strong and effective internal communication is essential for a smooth transformation and sustainability. It is considered that the organizations with a strong internal communication are more effective and efficient in the transformation.*
- *Important note: The best strategy is the **implemented** strategy.*

Creating the Implementation Framework and Planning

- Identifying the applicable Business Case,
- Establishing short, medium- and long-term action plans (typically 1-3-5 years),
- Developing R&D and innovation plans,
- Deciding on the sustainability governance and management structure; planning the changes in the organization and process assets,
- Identifying the fixed capital investments,
- Planning the competencies to be needed and the human resources with “specific” skills to be needed,
- Identifying the potential stakeholders who will contribute to the efforts of sustainability and transformation,

- Performing cost-effectiveness analyses with budget forecasts for the steps to be taken,
- Identifying the financial requirements and resources for the estimated budgets; resource assessments; identifying the accessible grants and incentives (national and international),
- Investigating the investors that are willing to ESG/responsible investing,
- Determining the criteria and methods to be used to indicate the success and progress,
- Determining the responsibilities and accountability,
- Scheduling timelines for clear and numerical targets,
- Deciding on the data to be measured and monitored,
- Planning appropriate communication and reporting.

Notes:

- *The goal is not about creating an all-inclusive plan that will cause some problems during the implementation, but about making and implement a plan that will work.*
- *While larger corporations tend to appoint a Chief Sustainability Officer from time to time in the organizational structure, one person can assume the role of CSO in addition to other responsibilities, in smaller enterprises. It should be noted that sustainability is the responsibility of all employees and stakeholders of an organization/company, but assigning a small full-time team within the organization/company (based on the size of the organization/company) will add a further value to it. It is particularly recommended that each function of the business be responsible for its own sustainability agenda aligned with the corporate goals.*
- *Sustainability transformation requires a long-term perspective. However, since it will not be possible to do all at the same time, it is advised to prepare the plans with different deadlines. Just as each of these plans are of great importance, short-term plans are also critical to keep the pace and motivation high in the transformation owing to the “fast acquisitions”.*
- *Carrying out Pilot studies (shorter term) initially on the issues (especially the issues promising high ROI/YGD but involving uncertainties) requiring large-scale investment (time, money and labour) can also be a part of the short- and medium-term plans. In medium and long term action plans, the issues requiring a capacity increase or greater investment can be addressed (e.g.*

commissioning of the newly designed production process, making the buildings and plant “green”, achievement of operational efficiency targets, etc.). Since the sustainability transformation of the products will require innovation, innovation activities will probably be an area that will yield results and be planned in the medium and long term.

- It is important to specify well-defined targets, to set numerical objectives and to produce a timeline (date) for achieving the targets. (For example; zero waste on date x or carbon neutral in year y)*
- ESG scores may differ if important steps such as methodology, scope, method, process, standardization and valuation are prepared by different rating providers that implement their own criteria when performing the rating. Considering all this, the firms need to have a good understanding of the framework to which they are subject and the entirety of the rating provider.*
- It is important to clearly define the responsibilities of the managers and employees at all levels to account for their own sustainability performance. It should be ensured that the KPIs for which the managers are responsible in terms of sustainability should also be included in their assessment KPIs.*
- In order to assess the impact on the environment, each organization/company must first determine the data to be measured and monitored regularly and then how to report them. It is critical to determine which methodology, approach, standard and framework will be used for measurement and reporting.*
- Trying to monitor everything can be a waste of time and resources. Measurement and regular monitoring of a carefully identified, relatively small number of important criteria may have the potential to produce a much better impact.*

IMPLEMENTATION, MONITORING, CONTROL AND COMMUNICATION

It is mentioned that the strategy developed by the organization/company, the framework and plans created should be applied consistently, monitored periodically and internal and external communication should be performed meticulously.

Implementation and Complementary Activities

- Building the necessary management structure; creating the organization,
- Recruiting/training the human resources with the planned specific skills,

- Contacting the potential stakeholders who will contribute to the efforts of sustainability and transformation,
- Implementing the plans,
- Building a data collection system,
- Establishing a sustainability management system,
- Investing in human resources development and sustainability education,
- Monitoring and control,
- Communication, reporting and feedback.

Notes:

- *Success lies primarily in planning, but especially in execution.*
- *Managing requires measuring. It is critical to collect data not only to manage, but also to account for and to meet the current or future obligations (e.g. carbon tax, etc.) and to produce the evidence that will substantiate the declarations. It is required to measure how close or far away the objectives are, and to do that, it will be necessary to measure and record the starting points and progresses.*
- *The sustainability management system to be established will ensure that the organization/company's internal and external stakeholders will know and adopt the subjects for which they will be responsible. It will be appropriate to establish/build a system according to the requirements and resources of the organization/company. Data can be stored in a wide range of options, from simple records to complex databases, if needs be. Real-time digital cockpits can also be created for the managers and relevant persons (concerning their areas of responsibility). In addition, various standards can contribute, too. (For example, ISO14000 describes the structure of an environmental management system.)*
- *While it is clear that specific trainings should be delivered for various roles (where the key stakeholders in the supply chain are also considered as a role within the scope of responsible supply), (e.g. hazardous waste handling-disposal, etc.), the training of managers and employees at all levels is also important.*
- *Trainings should include more than just explaining/reminding the regulatory requirements. It would also be appropriate to focus not only on threats but also on opportunities and encourage the employees to take action and take initiative whenever they observe a risk or opportunity.*

- *Senior leaders, board members and managers all need to improve their knowledge and capabilities, particularly in the areas of systems thinking, trends in sustainability, understanding the link between ESG and risk, and adopting the firm's impacts on society and the planet.*
- *After reporting and scoring according to ESG framework, it will be necessary to identify the areas for improvement and weaknesses following a detailed examination of the assessments and feedbacks. Necessary improvements should be made in order to develop, complete and take the business/company one step further.*
- *Ensuring transparency is critical. Thus, regular reporting on clear targets is required. Reporting will reinforce the firm's commitment to sustainability and eventual transformation.*
- *Although the need for external reporting is generally known, another point that needs attention is the great importance of internal communication and internal reporting for sustainability practices and transformation.*
- *In addition to the positive developments in internal reporting, reviewing the lessons learned, weaknesses and mistakes, and communicating them accurately will add value to the organization/company. It is necessary to ensure that the "root cause" analyses that will be made following an important sustainability case are reported and disseminated across the organization within the framework of the lessons learned.*

2.2. Criteria

Although a number of rating agencies operating in ESG rate the organisations/ companies based on a wide range of criteria, there is no generally-accepted standard or guideline for establishing an ESG rating. For this reason, important steps such as methodology, scope, method, process, standardization and valuation differ greatly from each other since the rating providers employ the criteria of their choice. In the report, a comprehensive and compact set of criteria was created by searching through the criteria sets of different initiatives and frameworks, especially the report "Measuring Stakeholder Capitalism: Towards Common Metrics and Consistent Reporting of Sustainable Value Creation" published by WEF in 2020.

The criteria outlined in Figure 15 are discussed in detail below.



Figure 15: Overview of Key Criteria and Descriptions

Governance

Purpose of the Organization/Company

- The extent to which the purpose of the organization/company is integrated into the strategy and objectives of the organization/company; whether it aims to create a value for all stakeholders; whether it contains solutions to economic, social and environmental issues,

Quality of Governing Body

- Whether social, environmental and economic competencies are reflected in the senior management body; whether it can reflect the views and perspectives of all levels within the organization/company; whether women and socially under-represented groups are included in governance; whether it addresses all stakeholders,

Strategy

- The expected success in compliance with the strategic, economic, environmental and social milestones; how will these milestones contribute to long-term value,

- The relationship of the organization/company's remuneration policies with the economic, environmental and social goals; remuneration policies for senior governance body and senior executives.

Ethical Behaviour

- For each level of the organization/company, the anti-corruption policies and the status of the training delivered as regards the sensitivities of the organization/company,
- The number and nature of corruption incidents involving the organization/company; mechanisms for reporting,
- Initiatives to combat corruption; to improve the working environment and culture; mechanisms from which advice is obtained on ethical and legal behaviour,
- The relationship between lobbying activities and the policies, objectives and other public attitude of the organization/company,
- Financial losses due to unethical behaviour.

Risks and Opportunity Oversight

- Risk and crisis management systematics,
- The significance of economic, environmental and social issues, including climate change, as well as the risks and opportunities in data management and in business processes,
- The significance of economic, environmental and social issues in big capital allocation decisions of the senior governance body.

Supply Chain

- Sustainability policy and practices for the supply chain,
- Regulated audits, number of incompatible subcontractors and measures.

Planet

Climate Change

- Greenhouse gas emissions; full implementation of TCFD recommendations; harmony of greenhouse gas emission commitments with the goals of Paris Agreement,
- The impact of greenhouse gas emissions generated along the value chain of the organization/company,
- Chlorofluorocarbon emissions.

Energy

- The total amount energy used; density and resources,
- Renewable energy production, usage and investments.

Nature Loss and Biodiversity

- The areas within or near the protected and/or key biodiversity areas; the land used in the production of basic plant, animal or mineral commodities along the entire value chain of the organization/company; the impact of the land used along the entire value chain,
- Deforestation,
- Identifying the risks threatening the biodiversity,
- Practices aimed at protecting the biodiversity.

Water Pollution

- Water consumption; the water withdrawn from the areas suffering water stress,
- The amounts of water withdrawn, used, recycled and released; the effect of water use and water withdrawal along the entire value chain of the organization/company,
- Fertilizers (agricultural nutrients) consumed along the entire value chain of the organization/company; the impact of water pollution (excessive agricultural nutrients, heavy metals and other toxins).

Air Pollution

- Nitrogen oxides (NOx), sulphur oxides (SOx), particulate matter, volatile organic compounds and other releases along the entire value chain of the organization/company; releases near residential areas; the impact of significant releases.

Wastes

- Recyclable waste; the amounts and types of waste recycled; impact of waste disposal,
- Disposable plastic consumption throughout the entire value chain of the organization/company,
- Hazardous waste and disposal methods.

Resource Availability

- Recycling criteria for organization/company's resource and methodological approach,

- Efficiency of existing machinery and equipment resources.

People

Dignity and Equality

- Age, gender and other diversity indicators related to the employees,
- Cases of discrimination and harassment, and measures and actions taken against such issues; financial losses resulting from these cases,
- Equality and differences in wages within the framework of critical diversity indicators; entry level wages compared to local minimum wage,
- Supports/benefits provided for women (childcare, nursery, maternity/ breastfeeding leave, etc.),
- Remuneration of senior management and managers as well as other benefits offered (stock options, etc.),
- The ratio of the CEO's wage to the that of other employees; the ratio of the person who receives the highest wage in the countries where the organization/company operates to the wages of other employees,
- Comparison of the remuneration in the countries/regions where the organization/company operates and the minimum wage required for a living in that particular country/region,
- Active employees under the collective bargaining agreement; the possible risks for the freedom of association and collective bargaining; its assessment in terms of suppliers.

Human Rights

- Operations subject to human rights investigations; the number, type and effects of complaints regarding significant human rights violations,
- The risks related to forced/compulsory labour and child labour throughout the entire value chain of the organization/company.

Health, Occupational Safety and Wellbeing

- Fatal, highly severe and remarkable occupational accidents,
- Loss of life as a result of work-related health problems (occupational diseases); medical problems,
- Total working time and absence rates,
- Non-work-related medical services provided by the organization/ company to its employees,
- Financial impacts of work-related incidents on the organization/company.

Skills for the Future

- Trainings delivered to the employees; training and development expenditures per employee,
- Vacant skilled positions; possibility to fill such positions through the training of applicants lacking the necessary skills,
- Effects of training and development activities.

Prosperity

Customer and Society

- Customer complaints, and solution policies,
- Cyber security policies; the policies and practices regarding the confidentiality of customers/stakeholders/personal data,
- Protection of intellectual property rights.

Employment and Wealth Generation

- The number, demographics, distribution of employees by diversity indicators, and employment rate,
- The number, demographics, distribution of employees leaving the jobs, and circulation rate.

Economic Contribution

- Direct economic value created and distributed,
- Financial support received from governments,
- Important infrastructure investments and services provided,
- Local purchasing policies; impacts on communities and local economies,
- Indirect economic impacts of the organization/company.

Financial Investment Contribution

- Capital investments; the investment strategy of the organization/company; share buybacks (repurchase) and dividend payments,
- The ratio of sustainability investments to all investments.

Innovation of Better Products and Services

- R&D expenditure,
- New products introduced to the market in the last 3 (or 5) years,
- Products and services designed to address social or sustainability issues.

Taxes

- Global taxes incurred by the organization/company; taxes collected by the organization/company on behalf of other taxpayers; taxes paid on the basis of countries and locations.

Community and Social Vitality

- Resources used by the organization/company for social purposes.

2.3. Supplementary Subjects- In A Nut Shell

In the upcoming period, sustainability, innovation and digitalization (and data) will be the three key decisive factors in the competitiveness of organizations/ companies. All these will become more effective with a strong governance. These are the areas that have been increasingly intertwined with, nourished by and integrated into each other.

This section will discuss briefly the requirement for digitalization, innovation, governance, which are complementary to sustainability, and the specific points regarding the SMEs. Each of these areas summarized here needs a comprehensive examination.

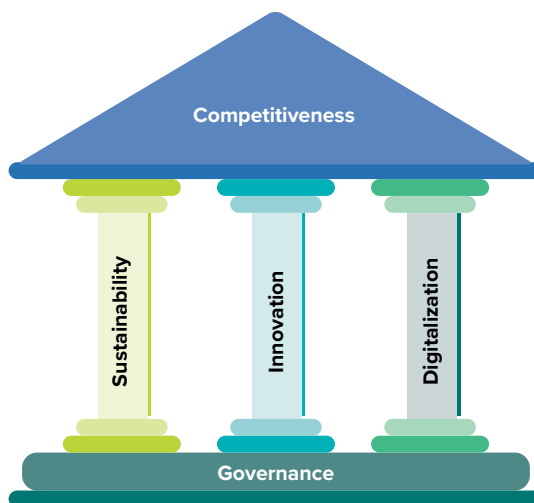


Figure 16: Main Factors to Determine the Competitiveness of Organizations/Companies

Digitalization (and Data)

Obviously, you cannot manage what you do not measure. Data and therefore digitalization are at the core of sustainability⁷. In the journey of sustainability, digitalization is an important leverage. Digitalization will serve with the systematics such as performing the measurements, collection and dissemination of data, formation of mathematical models, data analysis, evidence-based decision making, etc. In order to establish the causality and to evaluate the current situation and state of affairs by using the data collected systematically, it is essential that the data in each layer is accurate, quality, reliable and can be evidence based. In the context of sustainability digitalization will be utilized, especially in the collection, storage, processing and interpretation of data.

Green bonds, carbon market, ESG and responsible investing practices, indexing, etc. are all based on transparent, analysable, comparable, verifiable and reportable data and information derived therefrom.

Without data, the decisions have to be solely based on insights and opinions; the transactions have to be based on statements that cannot be verified.

Lack of data is a major problem. It will not be possible to make proper decisions with insufficient, late, duplicate/divergent, unverifiable data. Measurement and data science will be among the rising subjects of the coming period in the context of sustainability. The questions that need to be asked about data in each layer are as follows:

- Do we have KPIs, etc. on how to measure the system?
- What kind of data is needed for these KPIs? Are we measuring them?
- Is the data sufficient, detailed enough, real-time/near real-time; is it at the required frequency and verifiable?
- Are the requirements for dissemination/sharing specified?
- Do we have the models and do we perform the necessary studies to process and analyse the data in a proper manner?

The sector needs to be supplied with data and analysis that reflect the “sectoral level”. For example, the data will be needed to determine how much energy, carbon, water, etc. is used for 1 unit of production within the sectors, to determine the sectors and businesses with and without any added value by including the sustainability costs, to compare it with global competitors (to determine inefficiencies, to create investment and innovation plans) and most importantly, to make the transactions based on evidence, rather than on declaration only, in other words, to verify what has been declared.

7. Although also the EU Green Deal includes the denomination “Green” in its name, it would not be wrong to consider its scope both green and digital deal.

Good and quality data at the organization level will also provide a basic starting point for implementation. In order to measure the impact on the environment, each organization needs to determine the data to be measured and monitored regularly. The points to consider in this respect are as follows:

- The data set to be monitored in order to achieve the objectives of the sustainability strategy (who needs the data, which data they need, the frequency of data collection and storage, who will decide on the targets to be set, etc.)
- Criteria to be evaluated for the return on investment concerning the sustainability (digitization of the value that will arise from the relevant initiatives and expenditures, how to calculate the cost and benefit, expressing the intangible value, etc.)
- The kind of sustainability issues and effects to be monitored (criteria, values and ratios to be reported, legal public disclosure obligations, the framework to use, etc.)
- Additional data needed for external communication objectives (such as the demands of key stakeholders, industry norms, the breakdown of data according to the reporting needs of different stakeholders and requirements for the way of expression, etc.)

Hence, it will be necessary to establish habits and a culture of measurement, data retention and analysis etc. within the organizations.

There may be different types and sources of data: those reported by organizations, obtained from a third party and the data derived can also be used in the analysis. For example, MSCI is stated to collect data from more than 1,000 points in ESG research (Inside ESG Ratings: How Companies are Scored, 2021). These data sources could be company reporting (sustainability reports, financial reports, shareholders, company ESG statements, etc.), NGOs (GRI, SASB, IIRC, CDP, TCFD, UN SDG, etc.) governments (Central Bank reports, EU taxonomy, reports of Public Agencies, etc.), media (news) or alternative data sources (geographical information, water shortage data, flood risk data, etc.).

Finally, it is recommended that an organization to be formed to be in charge of the collection/storage/protection/sharing and technical management of sustainability indicators and data at ecosystem level. Such an organization is believed to be able to provide the following benefits:

- Protecting the data and ensuring data security,
- Prevention of duplication and differences in data retention,
- Providing national and international organizations with reliable data,

- Establishment of country databases in order to create a reference point for benchmarking and measurements,
- Conducting sustainability ratings more often and at low costs.

Innovation (and Technology)

It is obvious that it will be necessary to develop and deploy new technologies, products and business models in the journey of transformation for sustainability. Sustainability is an area with a potential to provide new markets and new profitability opportunities, rather than simply maintaining its current position and market share for organizations. In this period, product innovations will pave the way helping the organizations to differentiate their products (goods and services) and perhaps even to be more competitive.

In addition to the operations at the organization/company level, sustainability of the products will also be an important issue. Requirements and features such as the incorporation of new/sustainable/recycled materials in the products, increasing the energy efficiency, reducing the carbon/water/chemical footprint, maximization of recycling, minimizing the packaging, increasing the durability, reparability, etc. will affect the product designs and require comprehensive product innovations, where required. Naturally, the transformation in the products will manifest itself directly in the value chain.

If, for the organization/company, the answer to the question “Where should I start innovation?” is unclear, it may be suggested that the organization/company should start from the sustainability areas where the organization/company makes the most impact, to identify the set of problems to be solved (e.g. life cycle analysis results, weaknesses in the sustainability assessment performed or at least one or more of the UN SDGs from which it is affected the most).

The efforts at the organization/company level will not be sufficient. It will also be necessary to mobilize, steer and support the technological innovation ecosystem. The most important component that is to promote the innovation will “again” be data (e.g. the highest amount of packaging waste is in sector X, or the energy/water spent per unit of production in sector Y is much higher than that of the competitors) and the definition of problems that will “flow” from the sectors to the entrepreneurs (e.g. what can we do with the type of waste x?). In addition, the legislation and regulations will also be decisive. For example, the fact that the UK plans to install new hot water boilers as from 2025 and to ban all boiler systems in the period 2035-2040 in an attempt to reach “net zero carbon” target in 2050 is a decision that will increase alternative low-carbon technology (e.g. heat pump, biomass boiler, etc.) and related innovations (Gas Boiler Ban in the UK: From 2025 or 2035?, Gas Boilers To Be Banned From New Homes By 2021 & 2025, 2021)

So, which technology and innovation subjects can be put on the agenda? Considering that the world has just begun to take action, and dominant technologies and designs have not yet been formed in a number of subjects, the sustainable innovation will be an area highly open to creativity at this stage.

To provide a brief list of sampled topics:

- Energy efficiency
 - e.g.; smart systems, algorithms, hardware and software, energy harvesting, waste heat recovery, etc.
- Clean/renewable energy
 - e.g.; green hydrogen technologies,
- Energy storage, cell/battery
- Reforestation
- Land usage and forest monitoring
- Biodiversity monitoring
- Water monitoring
- Carbon capture/storage
 - e.g.; in soil, algae, etc.
- Recyclability/recovery
 - e.g.; recycling/recovery processes, continuous processes, bio-based materials, utilization of organic/biodegradable/agricultural waste, waste collection/deposit/sorting systems, waste material markets, etc.
- Clean production processes
 - e.g.; wastewater recovery, prevention of micro/nano plastics or fibers in production and products; hazardous waste disposal, etc.
- Materials
 - e.g.; bio-based materials and plastics, “green” iron-steel production, precious/critical/industrial metal recovery, standardization of material derived from the waste, fertilizers as an alternative to chemicals, etc.
- Resource efficiency solutions (last but not least)
 - e.g.; sensor and IoT systems for measuring and monitoring, decision support systems, facility automation, etc.

To give a general idea at this point, a very brief list is provided here as regards the environment/world aspect of sustainability (described as eco-friendly/

clean/planet, positive technologies). Technologies and the solutions that are/ have been formed and developed based on these technologies are at different maturity levels in each of them. Furthermore, all 17 goals of the UN SDG, including but not limited to, are creative playgrounds in their leanest senses.

In addition to new technology areas, it will also be necessary to identify the technologies that will be abandoned or the investments that are to be reduced. To give an example, it will be required to decide whether or not to continue investing in the chemical fertilizers, coal-based energy production, internal combustion engines relying on carbon fuels or the systems such as boilers, etc. as seen in the case of UK and with what they will be replaced. It should also be noted that the cost and scalability of technological solutions will be decisive, as well.

Although the need for technological innovation is high for some aspects of sustainability, it is still necessary to consider the simple, efficient and scalable solutions available for some aspects. As an example, considering that 75% of the irrecoverable carbon in the world exists in only 7.5% of the terrestrial areas (forests, pastures, swamps, etc.), the protection of these areas, contribution to afforestation by way of reforestation⁸ or the use of pressure/ drip irrigation systems in agricultural irrigation are the types of solutions that look technologically “non-complex” yet have the potential to make a difference even with the available technologies (Irrecoverable Carbon: The Importance of Preventing Deforestation, 2022). Effective, simple, scalable and affordable but readily available should not be ignored. Business model innovations, especially social innovations, will also develop further, with or without the technologies.

Sustainable innovation (and product) should be addressed separately and comprehensively. It would not be wrong to say that the companies/organizations even industrial ecosystems who are in a more advantageous position are those who can think and plan in the long term beyond daily operations, those who have “seated” R&D and innovation culture, systematics, tradition and network structures, and those who can develop and retain qualified human resources.

Need for Governance

Although this study focuses on the organizations/companies, the steps to be taken and the transformation needed are not limited only to the company or sectoral levels. The companies and institutions will need to work together, and even intensive inter-sectoral interaction will be needed. We face a strong need for multilateral, multi-layered and multidisciplinary governance.

There are numerous regulations and steps that need to be taken to cover a wide range of criteria. For example;

8. Considering that the forest is more than just an ecosystem of trees, it should be considered that planting trees may not automatically mean reforestation.

- Transformation of trade, consumer, industry, R&D and innovation, data management policies and legislation,
- Development and harmonization of legislation (e.g. border carbon regulation),
- Taxonomy studies (participation in the study within the EU),
- Making critical definitions (e.g. waste definition),
- Formation and harmonization of emission trading and taxation systems,
- Green bond system,
- Formation of new consultancy systems (e.g. waste, carbon) where necessary, and ensuring the compliance of all these with the relevant international legislation,
- Formation of technical and reporting standards,
- Establishment of specialized OIZs (e.g. recycling) and logistics hubs, where required,
- Formation of financing, incentive, support and insurance systematics,
- Carrying out the arrangements for the labor market,
- Formation of training systems for all these subjects, and training the human resources and certification where necessary, etc.

The list given above which is not comprehensive, gives an idea of the size and complexity of the circumstance. What's more, it is not limited to sustainability only where digital transformation should also be taken into account.

It is envisaged that, in some cases, a transformation of mentality and economic models may be required in addition to the legislation and processes. For example, the transition from linear economy (buy-make-dispose) to circular economy (buy-make-recycle-reuse) involves much more than just regulations at the operational level.

However, it should not be forgotten that the goals declared at the country level due to the agreements to which it is a party will be regulated and monitored on the basis of region, sector and the organization, as the case may be. The Activities should be expected to spread across all sectors over time, starting from the energy-intensive sectors. In the transformation process, it is essential to design interconnected/coordinated/integrated policies, plans, incentives and grants, and also to ensure that reliable/verified information is disseminated.

With respect to the references, there are many international initiatives, frameworks, regulations and standards (almost as varied as confusing). We need to be aware that not all of the frameworks, standards and regulations are not complete, and will evolve and change over time. There are several organizations,

institutions and platforms working on sustainability and environment at national and international level and new ones are added to them every day.

In addition to the existing ones, new organizations will need to be established. To give an example, there will be a need for interdisciplinary and multidisciplinary research, information management and implementation organizations that will support the organizations within the ecosystem with the research, information and training programs and have strong ties with the real sector.

All of the above point out that an integrated governance and communication structure will be needed so that the stakeholders (political, public with central and local administrations, private sector, civil society, international organizations, etc.) can contribute to the solution. It is widely expected that this governance will be realized under the leadership and coordination of the government and the public.

SMEs

As of 2020, there are 3.2 million SMEs in Turkey, which constitutes 99.8% of all businesses (Turkey's SME Bulletin, 2021). Beyond the success and progress of a limited number of large/multinational organizations, the way for sustainability to further expand in our country will be through the SMEs.

It should be kept in mind that during the COVID-19 period, the SMEs struggled for existence, strived to survive and encountered serious resource problems from time to time. SMEs will also need to be taken into account when making regional and sectoral setups, plans and organizations in imminent transformation processes. As a critical subject, the digital transformation of SMEs, as well as the sustainability, is an issue yet to be solved. It is likely that both transformations occur simultaneously.

For sustainability (and digital), the transformation is a highly intricate issue that requires management/governance skills apart from the management of technical, day-to-day operations such as reporting, etc. Even if the SMEs intend to, they will probably end up having difficulties and eventually struggling to figure out where to start, in addition to the resource constraints (financial, organizational, intellectual capital, human resources, etc.).

Above all, it might be tempting to think that large companies/organizations will need to guide their SMEs in their supply chains and contribute to their transformation. Although this approach is accurate and practical to a certain extent, it may be an incomplete approach to take the SMEs as a “subsidiary industry” or organizations working B2B only. It will possibly be harder for the SMEs possessing their own products (OEMs) or working B2C to receive support and guidance. Therefore, it is important for SMEs to participate in governance correctly and with adequate level representation.

What kind of support will be needed? Even though it is the financial grants and incentives that come to mind in the first place, it should also be noted that the supports at least as critical as these can include non- directly financial supports such as analysis, guidance, training, strategy and goal setting, monitoring-reporting consultancy, etc.

In summary, the SMEs shall require a **particular attention**.



Conclusion

Although known for many years, we finally face the fact that the biosphere and the world where the life strives to survive has a limit, in the face of the phenomena such as global temperature rise, extreme climate events, droughts, ecosystem damages, etc. as a result of somehow ignored climate change. The consequences of climate change are now affecting our lives directly.

The statement best depicting the world and thus the paradigm that brought us to today is the famous Milton Friedman theory, “A company has no social responsibility to the public or society; its only responsibility is to its shareholders” (Friedman Doctrine, 1970) as mentioned in his article published in The New York Times in 1970. Although the current corporate law and company organizations have been formed within the framework of this approach AKA Friedman Doctrine, the world has changed a lot since then. It is now widely accepted that global climate change, the consequences of which we have begun to experience, is the result of our production and consumption models as well as our perspective on nature and environment, or in other words, it has been caused by human activities.

The period following the World War II (especially as from the 1970s) can also be described as a time of affordable production and consumption in a sense. We may be nearing the end of the **age of cheap production and consumption** by “externalizing” very basic cost elements. Although it feels as if the “real” price of the products is not paid, it would be paid and continues to be paid in some way by those outside the “market mechanism” and therefore excluded from the cost estimations/calculations. For instance, the costs for greenhouse gas emissions would have been hardly paid and therefore, we confront more and more unexpected, extreme climatic events that occur as a result of the warming today. Labor-intensive work can be carried out in the countries or regions where the workers are employed extremely underpaid and lack the basic benefits, and thus the labor costs can be kept artificially low, natural environments can be destroyed easily and the waste can be discharged to the soil, sea and nature carelessly. Consequently, the ecosystems collapse and biodiversity degrades faster than predicted. Although they are not widely included in the calculations yet, all of them are expected to count in the real costs of the products.

In 1987, the UN Brundtland Commission defined the sustainable **development as the development that meets the needs of the present without compromising the ability of future generations to meet their own needs** (Brundtland Report, 1987). Or, put it differently, even if no one pays, the future generations will have to pay for invisible costs.

We now clearly know that the world is struggling to support the human activities (production, consumption) and our current economic models. The way we end up at this point is similar to a dialogue in Ernest Hemingway’s *The Sun Also Rises* “How did you go bankrupt?” “Two ways. Gradually, and then suddenly.”

The problem and therefore the solution are not limited to the environment only. **Sustainability** is the ability to make the life permanent while ensuring the continuity of production and diversity. The competitive perspective based on sustainability, which has begun to be adopted nowadays, must be taken as a holistic approach in which the environment and natural resources are protected, not only the people but all living things continue their lives in a healthy and safe way, and the social and ethical issues are considered as the integral parts with the environmental issues in order to maintain the profitability.

Disasters and crises are expected to force the “economic” growth paradigm to change at all costs. It is now globally accepted that transition to a new “order” is necessary for the continuity of environmental, economic and social development. The UN Sustainable Development Goals, Paris Agreement, the EU Green Deal, the US New Green Deal, the countries’ successive declarations of goals, numerous frameworks drafted and rapid development of sustainable/Responsible Investing can be described as major steps towards a more sustainable world. The pillars of this extensive transformation have become solidly visible in infrastructure, transport, energy, production, distribution, markets, end-users, organizations/ companies, supply chains and operations.

The European Union, which is the largest economic partner of Turkey, has put forward a holistic, comprehensive a vision called the “Green Deal” against the climate crisis that we describe as the most devastating problem of our age. This is a vision of twin/dual transformation that includes **digitalization** as well as sustainability. However, it might be inappropriate to limit this transformation to the EU agenda only. On the other side of the Atlantic, there is a plan called the Green New Deal that supports similar scopes and goals. In addition, various action plans of the world’s major economies are also on the agenda. It is critical to take advantage of the opportunities in an effort to coordinate and align with our existing and potential trading partners, especially the EU, which is our largest foreign trade partner.⁹

In the entirety of transformation process and the competitiveness of the future will be built on a triple pillar: sustainability, digitalization and innovation. Some countries are moving from discussion to planning and acting, relying on these three focal points, with a view not to lose their competitive advantage and not to falling behind in the development race. This is not an easy transition. It is a difficult but inevitable transformation process that will spread all across over time and require high amounts of resources.

One of the developments in terms of financial resources is responsible investing and ESG, which is based on the values of “making the world a better place” as one of the fastest growing investment areas, although it cannot be claimed to be

9. Note: Confusing things also happen in the process. For example, while the priority to reduce the carbon emissions is given to the coal exit (phase-out), the increase in coal use in 2021 put some question marks in the minds as it indicates a huge difference between the ideals and reality.

flawless. ESG Investing, which has developed under the leadership of investors who are worried about the environmental and social aspects of the world, is simply the alignment of investments in line with the «values». As the awareness about the impact of the companies on the world and society raises, so does the inflow of resources into such funds. In 2020, there was a great increase in the entry into ESG funds in 2020 and 2021 due to the concerns of survival and the soaring sustainability, which is caused by the pandemic. Large banks and investing organizations have reached the point of requesting regulations on ESG in the USA and Europe. Since this kind of adoption for the investor requires a decent and deep understanding of the effects of business, industry and firms on the world and society; ESG and Responsible Investing perspectives **provide valuable clues and criteria for the sustainability transformation from the perspective of the investors.**

Unfortunately, the fact that Turkey is not the primary cause of the climate crisis cannot prevent the serious effects of this crisis in our country. Recent drastic droughts, fires, mucilage problems and ecological destruction that have been encountered increasingly point out that our country is vulnerable to the threats. When the life becomes more and more difficult in general terms and even some areas become unsuitable for life, on top of the loss of competition in global trade, it would not be wrong to guess that the issue should not be limited to compliance with some legislations.

In order to become a climate-resistant, climate-neutral country and create a capacity to detect, predict, prepare and respond to sustainability-related threats, trends or disturbances, we need to take action in an organized and timely manner.

We are going through a period where those who are not a part of the solution can be perceived as part of the problem, where today's formulae of success turn into tomorrow's formulae for guaranteed failure. This is a capital-intensive transformation process that requires a good planning, decent governance and integrated and fast cooperation of a large number of stakeholders. We deeply believe that Turkey will gain significant benefits if this transformation is not considered a threat or compliance with the legislation in a reactive way, but rather an opportunity and if it is approached proactively. In order for our country to make the best of the anticipated opportunities, both the public and private sectors and NGOs will play an important role in making the necessary investments by effectively implementing innovative and holistic policies aimed at sustainability and digitalization.

As Technology Development Foundation of Turkey, we have seen the need for a source of information that will shed light on the institutions and organizations/ companies in terms of ESG in the sustainability journey. This study was conducted in order to serve as a driving guideline that will contribute hopefully to raising the awareness of companies and organizations about sustainability and ESG subjects, preparing ourselves for sustainability transformation and adapting to ESG principles while accessing the source of financing that will be needed.



Study Team

The members of the study team are listed alphabetically by their surnames.

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Hande Aydoğan graduated from the Department of Environmental Engineering, Bahçeşehir University in 2015. She began her professional career in 2013 as a Project Assistant in the Project for the Development of National Air Pollution Emission Management System supported by TÜBİTAK. Then, she continued to work as a Business Development Specialist in Stantec Turkey Operation. During her employment for 5.5 years at Stantec, she took an active role in the business development, strategy development and proposal preparation processes of environmental and energy projects in Turkey, Balkans, Middle East, North Africa and Central Asian Countries, which were funded by International Financial Institutions. In May 2020, she joined Assystem as Tendering Manager and led the business development activities and tendering processes in the environment, transportation, energy and nuclear projects of Assystem Turkey, France and Uzbekistan financed by International Financial Institutions. Employed as a Business Development Leader in TTGV Ecosystem Programs Coordination.



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References

ALAGOZ, M. (2007). “Surdurulebilir Kalkinmada Cevre Faktoru: Teorik Bir Bakis”. Accessed on 1 December 2021 at http://www.sd-certificate.info/dyn_files/sd/104.doc, GURLUK S. (2001). “Dunyada ve Turkiye’de Kirsal Kalkinma Politikolari ve Surdurulebilir Kalkinma”. Volume: 9 Issue: 4, December 2021.

AswathDamodaran. (2021). A Sceptical Look at ESG Accessed on 12 December 2021 at <https://aswathdamodaran.blogspot.com/2020/09/sounding-good-or-doing-good-skeptical.html>.

Bailard. (2020). From SRI to ESG: The Origins of Social Responsibility and Sustainable Investment. Accessed on 9 November 2021 at <https://www.bailard.com/wp-content/uploads/2020/09/History-Socially-Responsible-Investing-and-ESG-Investing.pdf>.

Banking Regulation and Supervision Agency. (2022). Sustainable Banking Strategic Plan. Accessed on 18 January 2022 at <https://www.bddk.org.tr/KurumHakkinda/EkGetir/5?ekId=36>.

Bertelsmann Stiftung and Sustainable Development Solutions. (2021). Sustainable Development Report. Accessed on 19 November 2021 at <https://s3.amazonaws.com/sustainabledevelopmentreport/2021/2021-sustainable-development-report.pdf>.

BIS. (2020). The Green Swan Central Banking And Financial Stability In The Age Of Climate Change. Accessed on 12 July 2021 at <https://www.bis.org/publ/othp31.pdf>.

Blackrock. (2020). Larry Fink’s Letter. Accessed on 18 June 2021 at <https://www.blackrock.com/americas-offshore/en/larry-fink-ceo-letter>.

BMEL. (2021). 300 Years of Applied Sustainability In Forestry. Accessed on 30 November 2021 at <https://www.bmel.de/DE/themen/wald/wald-in-deutschland/carlowitz-jahr.html>.

Budak, S. (2000). Avrupa Birliği ve Turkiye Cevre Politikasi. Istanbul: Boke Publishing.

Business & Sustainable Development Commission. (2017). Better Business, Better World. Accessed on 5 November 2021 at https://d306pr3pise04h.cloudfront.net/docs/news_events%2F9.3%2Fbetter-business-better-world.pdf

Capital Market Board. (2021). Sustainability Principles Compliance Framework. Accessed on 25 December 2021 at <https://www.spk.gov.tr/Sayfa/Dosya/1332>.

Capital Market Board. (2022). Guidelines on Green Debt Instruments, Sustainable Debt Instruments,

CDP Turkey. (2010). CDP Turkey. Accessed on 22 May 2021 at <https://cdpturkey.sabanciuniv.edu/tr>.

CDP. (2000). About CDP. Accessed on 22 May 2021 at <https://www.cdp.net/en/info/about-us>.

CDP. (2016). CDP Climate Change Report. Accessed on 24 May 2021 at <https://cdn.cdp.net/cdp-production/cms/reports/documents/000/001/234/original/CDP-Nordic2016-v13-MR-Links.pdf?1478707498>.

Cone Communications. (2016). Millennial Employee Engagement Study. Accessed on 27 September 2021 at <https://www.conecomm.com/research-blog/2016-millennial-employee-engagement-study#download-the-research>.

Context Institute. (2021). Robert Gilman. Accessed on 30 November 2021 at <https://www.context.org/about/who-we-are/robert-gilman/>.

Corporate Investor. (2020). 'Dark Side' of ESG. Accessed on 12 December 2021 at <https://www.institutionalinvestor.com/article/b1m00mfvl802r/The-Dark-Side-of-ESG>.

Council of the European Union . (2021). Carbon Border Adjustment Mechanism. Accessed on 3 August 2021 at https://ec.europa.eu/taxation_customs/green-taxation-0/carbon-border-adjustment-mechanism_de.

Council of the European Union . (2021). EU's Green Transition Plan. Accessed on 3 August 2021 at <https://www.consilium.europa.eu/en/policies/green-deal/eu-plan-for-a-green-transition/>.

Egeli, G. (1996). Avrupa Birliği ve Türkiye'de Çevre Sorunları. Ankara: TCV Publication.

Ember. (2022). Daily Carbon Prices. Accessed on 24 February 2022 at <https://ember-climate.org/data/carbon-price-viewer/>.

Escarus Blog. (2020). What is EU Green Deal?. Accessed on 1 December 2021 at <https://www.escarus.com/ab-yesil-mutabakati-nedir>.

Esty, D. C., & Simmons, P. J. (2011). The Green to Gold Business Playbook: How to implement sustainability practices for bottom-line results in every business function. Wiley.

EU Taxonomy Information Portal (2021). Accessed on 22 November 2021 at <https://eu-taxonomy.info/>.

Europe Beyond Coal, (2021). Outlook on Europe's Coal Exit Commitments. Accessed on 21 December 2021 at <https://beyond-coal.eu/wp-content/uploads/2021/11/Avrupa-Komurden-Cikis-.pdf>.

European Commission. (2019). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Accessed on 30 May 2021 at https://ec.europa.eu/info/sites/default/files/european-green-deal-communication_en.pdf.

European Commission. (2019). European Green Deal. Accessed on 8 June 2021 at https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en.

European Commission. (2021). Accessed on 22 November 2021 at https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en.

Financial Freedom Countdown. (2020). What Is ESG Investing And 5 Reasons Why It Is A Bad Idea. Accessed on 12 December 2021 at <https://financialfreedomcountdown.com/what-is-esg-investing/>.

Financial Times. (2021). ESG investing industry is dangerous. Accessed on 12 December 2021 at <https://www.ft.com/content/ec02fd5d-e8bd-45bd-b015-a5799ae820cf>.

Forbes. (2020). Demystifying ESG: Its History & Current. Accessed on 6 May 2021 at <https://www.forbes.com/sites/betsyatkins/2020/06/08/demystifying-esg-its-history--current-status/?sh=3e592fd82cdd>.

Global Reporting Initiative. (2020). Sustainability Reporting Is Growing, With GRI The Global Common Language. Accessed on 9 July 2021 at <https://www.globalreporting.org/about-gri/news-center/2020-12-01-sustainability-reporting-is-growing-with-gri-the-global-common-language/>.

Green Finance Platform. (2020). Banka 2030: Accelerating Transition to Low Carbon Economy. Accessed on 6 October 2021 at <https://www.greenfinanceplatform.org/research/bank-2030-accelerating-transition-low-carbon-economy>.

Green Lease Certificates and Sustainable Lease Certificates. Accessed on 25 February 2021 at <https://spk.gov.tr/Sayfa/Dosya/1362>.

Greenmatch. (2021). Gas Boiler Ban in the UK: From 2025 or 2035? Accessed on 16 February 2021 at <https://www.greenmatch.co.uk/blog/gas-boiler-ban>.

GreenPrint. (2021). Survey for Consumers' Desire to Buy Eco-Friendly Products. Accessed on 10 November 2021 at <https://www.businesswire.com/news/home/20210322005061/en/GreenPrint-Survey-Finds-Consumers-Want-to-Buy-Eco-Friendly-Products-but-Don%E2%80%99t-Know-How-to-Identify-Them>.

GRI. (2020). The global standards for sustainability reporting. Accessed on 19 July 2021 at <https://www.globalreporting.org/standards/>.

Harvard Business Review. (2020). A More Sustainable Supply Chain. Accessed on 10 October 2021 at <https://hbr.org/2020/03/a-more-sustainable-supply-chain>.

Hemingway, Ernest. The Sun Also Rises. Transl. Dost Korpe. Ankara: Bilgi Publishing, 8. Issue, 2021.

Hong, Harrison & Kacperczyk, Marcin. (2009). The Price of Sin: The Effects of Social Norms on Markets. Journal of Financial Economics. 93. 15-36. 10.2139/ssrn.766465.

International Energy Agency. (2020). Working from home can save energy and reduce emissions. But how much? Accessed on 4 October 2021 at <https://www.iea.org/commentaries/working-from-home-can-save-energy-and-reduce-emissions-but-how-much>.

International Energy Agency. (2021). Coal 2021 Report. Accessed on 21 December 2021 at <https://iea.blob.core.windows.net/assets/f1d724d4-a753-4336-9f6e-64679fa23bbf/Coal2021.pdf>.

Investopedia. (2021). ESG Criteria. Accessed on 3 January 2021 at <https://www.investopedia.com/terms/e/environmental-social-and-governance-esg-criteria.asp>.

Investopedia. (2021). Greenwashing. Accessed on 12 December 2021 at <https://www.investopedia.com/terms/g/greenwashing.asp>.

IPCC. (2021). IPCC 6th Assessment Report - The Physical Science Basis. Accessed on 20 November 2021 at <https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/>.

ipcc.ch. (2022). Climate Change 2021 Report. Accessed on 2 December 2021 at <https://www.ipcc.ch/report/ar6/wg1/>

Marketwatch. (2021) What's Really In Your 'Earth-Friendly' ESG Fund? Accessed on 12 December 2021 at <https://www.marketwatch.com/story/buyer-beware-whats-really-in-your-earth-friendly-esg-fund-11615485716>.

MSCI. (2020). ESG Fund Ratings. Accessed on 22 June 2021 at <https://www.msci.com/our-solutions/esg-investing/esg-fund-ratings>.

MSCI. (2020). MSCI Annual Report. Accessed on 16 June 2021 at <https://www.msci.com/documents/1296102/23900744/2020+Annual+Report.pdf>.

Nielsen. (2018). Sustainable Shopping Report. Accessed on 27 September 2021 at <https://www.nielsen.com/wp-content/uploads/sites/3/2019/04/global-sustainable-shoppers-report-2018.pdf>.

OEKOM.DE.(2021). Sylvicultura oeconomica | oekom verlag. Accessed on 30 November 2021 at <https://www.oekom.de/buch/sylvicultura-oeconomica-9783962383565>.

Our World in Data. (2020). CO2 Emissions. Accessed on 19 November 2021 at <https://ourworldindata.org/co2-emissions>.

Principles for Responsible Investing (2021). Annual Report. Accessed on 20 November 2021 at <https://www.unpri.org/annual-report-2021/how-we-work/building-our-effectiveness/enhance-our-global-footprint>.

Republic of Turkey Prime Ministry State Planning Organization. (2010). Millennium Development Goals Report Turkey. Accessed on 1 December 2021 at http://www.surdurulebilirlikalkinma.gov.tr/wp-content/uploads/2016/07/UNDP-TR-TR-2010-MDG-Report_TR.pdf.

Rodney and Otamatea Times, Waitemata and Kaipara Gazette. (1912). Coal Consumption Affecting Climate. Accessed on 30 June 2021 at <https://paperspast.natlib.govt.nz/newspapers/rodney-and-otamatea-times-waitemata-and-kaipara-gazette/1912/08/14/7>.

S&P Global. (2020). What Is The Difference Between ESG Investing And Socially Responsible Investing? Accessed on 14 October 2021 at <https://www.spglobal.com/en/research-insights/articles/what-is-the-difference-between-esg-investing-and-socially-responsible-investing>.

SASB. (2010). SASB Standards and Other ESG Frameworks. Accessed on 16 June 2021 at <https://www.sasb.org/about/sasb-and-other-esg-frameworks/>.

Stanford Social Innovation Review. (2021). The World May Be Better Off Without ESG Investing. Accessed on 12 December 2021 at https://ssir.org/articles/entry/the_world_may_be_better_off_without_esg_investing.

SustainFi. (2022). Best ESG and Sustainable Investment Statistics. Accessed on 2 February 2022 at <https://sustainfi.com/articles/investing/esg-statistics/>.

Switch2Green. (2020). EU Green Deal – A Roadmap To Sustainable Economies. Accessed on 8 June 2021 at <https://www.switchtogreen.eu/the-eu-green-deal-promoting-a-green-notable-circular-economy/>.

TCDF. (2010). About TCFD. Accessed on 5 June 2021 at <https://www.fsb-tcfd.org/about/>.

TCDF. (2017). Task Force Recommendations On Climate-Related Financial Disclosures. Accessed on 5 June 2021 at <https://assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf>.

The New York Times. (1970). Friedman Doctrine. Accessed on 12 August 2021 at <https://www.nytimes.com/1970/09/13/archives/a-friedman-doctrine-the-social-responsibility-of-business-is-to.html>.

The New York Times. (2019). What is Green New Deal? Accessed on 12 August 2021 at <https://www.nytimes.com/2019/02/21/climate/green-new-deal-questions-answers.html>.

The Republic of Turkey Directorate of Communications (2021). Turkey's Green Development Revolution. Accessed on 25 December 2021 at https://www.iletisim.gov.tr/images/uploads/dosyalar/Turkiyenin_Yesil_Kalkinma_Devrimi.pdf.

The Republic of Turkey Presidency of Strategy and Budget. (2022). Sustainable Development Goals and Indicators. Accessed on 1 December 2021 at https://www.sbb.gov.tr/wp-content/uploads/2020/03/Surdurulebilir-Kalkinma-Amaclari-Degerlendirme-Raporu_13_12_2019-WEB.pdf.

The Union Of Chambers And Commodity Exchanges Of Turkey. (2021). Türkiye'nin KOBİ'leri Bulteni. Accessed on 19 February 2022 at <https://www.tobb.org.tr/KobiArastirma/Sayfalar/TRninKOBİleriBulteni.php>.

The Wall Street Journal. (2021). European Union Aims for Clarity in Murky World of Sustainable Investing. Accessed on 12 November 2021 at https://www.wsj.com/articles/european-union-aims-for-clarity-in-murky-world-of-sustainable-investing-11619020300?mod=article_inline.

The Wall Street Journal. (2021). Some European Companies Struggle to Calculate How Much of Their Business Is Green. Accessed on 4 January 2022 at <https://www.wsj.com/articles/some-european-companies-struggle-to-calculate-how-much-of-their-business-is-green-11640601009>.

The Wall Street Journal. (2021). What Makes an Investment 'Green'? EU Wants an Answer. Accessed on 5 December 2022 at https://www.wsj.com/articles/what-makes-an-investment-green-the-eu-wants-an-answer-11617721259?mod=article_inline.

Thermal Earth (2021). Gas Boilers To Be Banned From New Homes By 2025. Accessed on 16 February 2022 at <https://www.thermalearth.co.uk/blog/gas-boilers-banned-new-homes-2025#:~:text=The%20government%20has%20announced%20that,carbon%20net%20zero%20by%202050>.

Turkish Ministry of Environment and Climate Change. (2010). Turkey Climate Change Strategy. Accessed on 7 July 2021 at https://webdosya.csb.gov.tr/db/iklim/editordosya/file/strateji%20belgesi/Turkiye%20iklim%20Degisikligi%20Strateji%20Belgesi_TR.pdf.

Turkish Ministry of Environment and Climate Change. (2011). Climate Change Action Plan. Accessed on 7 July 2021 at https://webdosya.csb.gov.tr/db/iklim/editordosya/file/eylem%20planlari/Iklim%20Degisikligi%20Eylem%20Plani_TR.pdf.

Turkish Ministry of Environment and Climate Change. (2011). Climate Change Compliance Strategy and Action Plan. Accessed on 7 July 2021 at https://webdosya.csb.gov.tr/db/iklim/editordosya/uyum_stratejisi_eylem_plani_TR.pdf.

Turkish Ministry of Environment and Climate Change. (2020). Turkey 6th Environment Status Report. Accessed on 1 December 2021 at <https://webdosya.csb.gov.tr/db/ced/dokumanlar/turkiye-cevre--8230-48359-20210421084531.pdf>.

Turkish Ministry of Environment and Climate Change. (2021). Our History. Accessed on 16 December 2021 at <https://csb.gov.tr/tarihcemiz-i-7012>.

Turkish Ministry of Environment and Climate Change. (2021). Paris Agreement. Accessed on 1 December 2021 at <https://iklim.csb.gov.tr/paris-anlasmasi-i-98587>.

Turkish Ministry of Foreign Affairs. (2021). Paris Agreement. Accessed on 1 December 2021 at <https://www.mfa.gov.tr/paris-anlasmasi.tr.mfa>.

Turkish Ministry of Foreign Affairs. (2021). Sustainable Development. Accessed on 1 December 2021 at <https://www.mfa.gov.tr/surdurulebilir-kalkinma.tr.mfa>.

Turkish Ministry of Trade. (2021). Green Deal Action Plan. Accessed on 9 October 2021 at <https://ticaret.gov.tr/data/60f1200013b876eb28421b23/MUTABAKAT%20YE%C5%9E%C4%BOL.pdf>.

Turkish Ministry of Treasury and Finance. (2021). Sustainable Finance Framework. Accessed on 25 December 2021 at <https://ms.hmb.gov.tr/uploads/2021/11/Republic-of-Turkey-Sustainable-Finance-Framework.pdf>.

UN The Global Compact, Swiss Federal Department of Foreign Affairs, International Finance Institution. (2005). Who Cares Wins. Accessed on 10 June 2021 at <https://documents1.worldbank.org/curated/en/280911488968799581/pdf/113237-WP-WhoCaresWins-2004.pdf>.

UNDP Turkey. (2019). Sustainable Development Goals. Accessed on 1 December 2021 at <https://www.un.org/development/desa/en/news/sustainable/sustainable-development-goals.html>.

United Nations (2005). Kofi Annan's Statement. Accessed on 12 June 2021 at <https://www.un.org/sg/en/content/sg/speeches/2005-03-21/kofi-annans-statement-general-assembly>.

United Nations Environment Programme Finance Initiative (2005). Freshfield Report. Accessed on 12 June 2021 at https://www.unepfi.org/fileadmin/documents/freshfields_legal_resp_20051123.pdf.

United Nations. (2015). 17 Goals. Accessed on 8 July 2021 at <https://sdgs.un.org/goals>.

Visualcapitalist. (2021). Inside ESG Ratings: How Companies are Scored Accessed on 17 October 2021 at 2021 <https://www.visualcapitalist.com/inside-esg-ratings-how-companies-are-scored/>.

VisualCapitalist. (2022). Irrecoverable Carbon: The Importance of Preventing Deforestation. Accessed on 16 February 2022 at <https://www.visualcapitalist.com/irrecoverable-carbon-the-importance-of-preventing-deforestation/>.

WCED. (1987). Our Common Future (Brundtland Report), Accessed on 1 December 2021 at <https://www.are.admin.ch/are/en/home/media/publications/sustainable-development/brundtland-report.html>.

World Economic Forum. (2017). The Compact for Responsive and Responsible Leadership. Accessed on 7 July 2021 at https://www3.weforum.org/docs/Media/AM17/The_Compact_for_Responsive_and_Responsible_Leadership_09.01.2017.pdf.

World Economic Forum. (2020). Measuring Stakeholder Capitalism - Towards Common Metrics And Consistent Reporting Of Sustainable Value Creation. Accessed on 15 June 2021 at <https://www.weforum.org/reports/measuring-stakeholder-capitalism-towards-common-metrics-and-consistent-reporting-of-sustainable-value-creation>.

World Economic Forum. (2022). Global Risk Report. Accessed on 17 January 2022 at https://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2022.pdf.

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